DOE/EIS-0399

Final
Environmental Impact Statement

for the
Montana Alberta Tie Ltd. (MATL)
230-kV Transmission Line

SUMMARY

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United States
Department of Energy

State of Montana
Department of Environmental Quality

COVER SHEET

Responsible Agencies: U.S. Department of Energy (DOE) and Montana Department of Environmental Quality (DEQ) are co-lead agencies; the Bureau of Land Management (BLM), U.S. Department of the Interior, is a cooperating agency.

Title: Final Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (DOE/EIS-0399)

Location: Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties, Montana.

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Abstract: MATL proposes to construct and operate a merchant 230-kV transmission line between Great Falls, Montana, and Lethbridge, Alberta, that would cross the U.S.-Canada border north of Cut Bank, Montana. The transmission line would transmit 300 megawatts (MW) of electric power south and 300 MW north. In order to build and operate the line, MATL must first obtain a Presidential permit (Permit) from DOE to cross the U.S.-Canada border, a Certificate of Compliance (Certificate) from the Montana DEQ to construct the line in Montana, and a right-of-way grant from the BLM to cross any BLM-administered lands.

In March 2007 DOE and DEQ published a joint document (referred to herein as the March 2007 document) that was a Draft Environmental Assessment for DOE and a Draft Environmental Impact Statement (EIS) for DEQ. Based largely on the public comments received on the March 2007 document, DOE determined that an EIS was the appropriate level of review. For the same reasons, DEQ decided to prepare a supplement to its Draft EIS. In February 2008 the agencies published a document (referred to herein as the Draft EIS) that was a Federal Draft EIS and a State of Montana Supplemental Draft EIS. A 45-day comment period began with publication of a Notice of Availability in the *Federal Register* on February 15, 2008 (73 FR 8869), and ended on March 31, 2008, during which the agencies held three public hearings to obtain comments. The Final EIS contains the agencies' responses to comments and revisions to the Draft EIS. Text changes to this Final EIS from the Draft EIS are identified by underlining for corrected or added text and a mark along the left margin.

The EIS analyzes the "No Action" alternative and three alternative transmission line alignments with 11 Local Routing Options and other minor variations to the alternative alignments. The agencies will use the EIS to ensure that they have the environmental information needed to render informed decisions.

An accompanying compact disc contains electronic copies of the Final EIS, including the appendices, which are not included in the paper copy, along with Volume 2 from the Draft EIS, which provides responses to comments received on the March 2007 document. The EIS will be available on DOE's NEPA website at www.gc.energy.gov/NEPA/DOE_NEPA_documents.htm and at DEQ's website at http://deq.mt.gov/MFS/MATL.asp.

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Acronym List

APLIC	Avian Power Line Interaction Committee
ARM	Administrative Rules of Montana
BLM	U.S. Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRP	Conservation Reserve Program
DEQ	Montana Department of Environmental Quality
DGPS	Differential Global Positioning System
DNRC	**Montana** Department of Natural Resources & Conservation
DOE	U.S. Department of Energy
DOR	**Montana Department of Revenue**
EA	Environmental Assessment
EEI	Edison Electric Institute
E.O.	Executive Order
EIS	Environmental impact statement
EMF	Electric and magnetic field
FAA	Federal Aviation Administration
FWP	Montana Fish, Wildlife and Parks
FWS	U.S. Fish and Wildlife Service
kV	Kilovolt
LIDAR	Light Detection and Ranging
MATL	Montana Alberta Tie, Ltd.
MCA	Montana Code Annotated
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MFSA	**Montana** Major Facility Siting Act
mG	Milligauss
MW	Megawatt
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NRHP	National Register of Historic Places
NWE	NorthWestern Energy

Acronym List (Cont.)

OSHA	Occupational Safety and Health Act
ROW	Right-of-way
SHPO	State Historic Preservation Office
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
WAPA	Western Area Power Administration

Summary

S.1 Introduction

This is a State of Montana Final Environmental Impact Statement (EIS) and the U.S. Department of Energy (DOE) Federal Final EIS (referred to herein as the EIS for both state and Federal purposes) prepared for the United States portion of the proposed Montana Alberta Tie Ltd. (MATL) 230-kilovolt (kV) transmission line.

The EIS consists of two volumes. Volume 1 consists of a Summary, a description of the proposal and alternatives, analysis of their impacts, and appendices. (Because of their length, the appendices are not printed as part of Volume 1. They are, however, included in full in the accompanying compact disk.) Volume 2 consists of the comments received on the Draft EIS (published in February 2008) and the agencies' responses to the comments.

MATL has proposed to construct an international 230-kV alternating current merchant (private) transmission line that would originate at the existing NorthWestern Energy (NWE) 230-kV Switchyard at Great Falls, Montana, and extend north to a new substation to be constructed northeast of Lethbridge, Alberta, crossing the U.S.-Canada international border north of Cut Bank, Montana (proposed Project). Approximately 130 miles of the 203-mile transmission line are proposed to be constructed in the U.S. The line would be constructed and owned by MATL, a private Canadian corporation owned by Tonbridge Power. The proposed line would be part of the Western Interconnection[1] (western grid), and a phase shifting transformer would be installed at the substation near Lethbridge to control the direction of power flows on the line. In order to develop the proposed Project, MATL must obtain Federal and State authorizations.

MATL submitted an application for a Certificate of Compliance (Certificate) to the Montana Department of Environmental Quality (DEQ) under the Montana Major Facility Siting Act (MFSA), (75-20-101, et seq., Montana Code Annotated [MCA]). MATL also applied to DOE for a Presidential permit (permit) to construct, operate, maintain, and connect facilities for the transmission of electric energy at the U.S.-Canada international border and to the U.S. Bureau of Land Management (BLM) for a right-of-way (ROW) grant for Transportation and Utility Systems and Facilities on Federal Land. MATL must receive all three authorizations before it can implement the proposed Project. In response to the application for a certificate, DEQ must prepare a

1 While the power system in North America is commonly referred to as "the grid," there are actually three distinct power grids or "interconnections." The Eastern Interconnection includes the eastern two-thirds of the continental United States and Canada from Saskatchewan east to the Maritime Provinces. The Western Interconnection includes the western third of the continental United States (excluding Alaska), the Canadian provinces of Alberta and British Columbia, and a portion of Baja California Norte, Mexico. The third interconnection comprises most of the State of Texas. The three interconnections are electrically independent from each other except for a few small direct current transmission lines that link them.

report, conduct an environmental review, and issue an approval before construction may begin. These are required by the Montana Environmental Policy Act (MEPA) and MFSA. The DOE and BLM actions also require an environmental review conducted in accordance with the National Environmental Policy Act (NEPA).

S.2 Purpose and Benefit to the State of Montana

The proposed MATL transmission line would connect the Montana electric system with the Alberta electric system, provide access to potential markets for new and existing power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources. Expected benefits of the proposed Project are summarized below.

S.2.1 Benefits to Electricity Generators and Consumers in Montana

The proposed transmission line would have the capacity to carry up to 300 megawatts (MW) of electric power north and 300 MW south for a total capacity of up to 600 MW. However, due to constraints on the current system where the MATL line would tie in at Great Falls, the full capacity of 300 MW to the south may not be realized unless additional upgrades are made to the transmission system south of Great Falls. The added transmission capacity from the proposed MATL transmission line could support a modest increase in new power generation in Montana. While new generation in excess of 600 MW would need more transmission capacity than MATL's proposed Project could provide, the construction and operation of the proposed Project would provide opportunities for development of smaller energy generation projects of up to 600 MW, such as wind energy, in Montana. Currently, MATL has sold all the capacity of the line to prospective developers of wind farms. The development of wind farms along the MATL line is considered to be a reasonably foreseeable future action under Federal law and is analyzed under the cumulative impacts.

Additional expected benefits to Montana generators and consumers include: additional connection with markets that demand energy; additional wholesale electricity purchasing options for Montana utilities, which could result in lower electricity rates due to an increase in supplier competition; and increased opportunities for western grid optimization during high Montana export and low Alberta-to-British Columbia export scenarios.

S.2.2 Benefits to Existing Transmission Systems

A modified transmission system, including a tie line between Montana and Alberta, may also result in benefits to transmission system operators whose service areas include Montana and to utilities that provide transmission service within the state. A modified transmission system could provide more options for power routing within Montana, increase energy transactions between Montana and Alberta, and allow for easier balancing of energy surpluses and shortages within and between balancing authority areas. Because tie lines are able to connect with adjacent electric systems, different generation resources can combine to provide a level of reliability that one jurisdiction could not otherwise afford to provide if that jurisdiction had to cover the same resources independently. The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NorthWestern Energy (NWE), to obtain regulating reserves for its transmission system control area. Regulating reserves are likely to become increasingly important as more wind energy is built in NWE's jurisdiction.

S.2.3 Benefits as Stated by the Applicant

The MATL transmission line would be a merchant line, the primary purpose of which is to financially benefit the owner/operators. The MATL application for certification described the following benefits to MATL, the U.S., and Canada:

> *The Project would be the United States' first power transmission interconnection with Alberta and is expected to facilitate development of additional sources of generation (e.g., windfarms both in northern Montana, and southern Alberta), and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the Project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.*

In addition, MATL asserts that system stability studies conducted under the direction of the Western Electricity Coordinating Council Peer Review Group indicate that the proposed Project would not adversely affect transmission system stability (Tonbridge Power, Inc. 2007). A Transmission Line Interconnection Agreement between MATL LLC and NorthWestern Corporation (parent company of NWE) was executed on December 20, 2007 and became effective on January 31, 2008.

The proposed Project is needed to provide transmission capacity between Lethbridge and Great Falls. There is currently no direct high voltage power transmission connection between Alberta and Montana. Although additional capacity is not needed to provide power to Montana customers, additional capacity would allow increased

electricity trading between Alberta and Montana and could facilitate development of wind farms or other generation facilities in the vicinity.

Because Montana makes more electricity than it consumes, to be economically viable, any new generation resources in Montana must offer competitive pricing and have adequate transmission access to compete in out-of-state markets or replace an existing supplier choosing to take higher profits by selling out of state. Either way, additional transmission capacity is not needed to serve Montana customers, but it is essential for the viability of new generation enterprises (DEQ 2004).

S.3 General DOE, MFSA, NEPA/MEPA, and BLM Requirements

MEPA requires that decision makers consider the effects of their actions on the human environment. MFSA requires that need, environmental effects, costs, electric reliability and other factors are considered before making a decision. State agencies must inform the public of the decision making process and seek participation in the process. Similarly, NEPA requires that Federal decision makers be fully informed of the potential environmental consequences of their agency's proposed actions, provide an opportunity for public participation in the environmental review process, and document the reasons for their decisions. The information contained in this EIS will provide a basis for DEQ to make findings required for its certification decision and for DOE to determine whether it is in the public interest to grant a Presidential permit, and BLM to grant a ROW. DEQ, DOE, and the BLM will use this information to decide which alternative(s) could be implemented and which mitigation measures, if any, would be appropriate for inclusion as a condition of the certificate, permit, or ROW grant. DEQ, DOE, and BLM will document their decisions separately.

S.3.1 Purpose and Need for DOE Action

DOE has the responsibility for implementing Executive Order (E.O.) 10485 (September 9, 1953), as amended by E.O. 12038 (February 7, 1978), which requires the issuance of a Presidential permit for the construction, operation, maintenance, and connection of electric transmission facilities at the United States international border. DOE may issue the permit if it determines the project to be consistent with the public interest and after obtaining favorable recommendations from the U.S. Departments of State and Defense. In determining if a proposed Project is consistent with the public interest, DOE considers:

1. Potential environmental impacts in accordance with NEPA and Council on Environmental Quality (CEQ) and DOE implementing regulations at 40 Code of Federal Regulations (CFR) Parts 1500-1508 and 10 CFR Part 1021, respectively;

2. The proposed project's impact on electric reliability, that is whether the proposed Project would adversely affect the operation of the U.S. electric power supply system under normal and contingency conditions; and

3. Any other factors that DOE may consider relevant to the public interest.

DOE will consider this EIS in determining whether to grant a Presidential permit to MATL. DOE's action responds to MATL's request for a Presidential permit.

S.3.2 DEQ MFSA Requirements

Under MFSA, DEQ requires a certificate of compliance for construction of electric transmission lines defined as facilities. The purposes of MFSA are to: (1) ensure the protection of the state's environmental resources; (2) ensure the consideration of socioeconomic impacts; (3) provide citizens with an opportunity to participate in facility siting decisions; and (4) establish a coordinated and efficient method for the processing of all authorizations required for regulated facilities. DEQ must find that the selected alternative meets the set of criteria listed in 75-20-301, MCA, and applicable administrative rules to be eligible for transmission line certification.

DEQ would approve a transmission line facility as proposed or as modified or an alternative to the proposed facility if it finds and determines:

- the need for the facility;
- the nature of probable environmental impacts;
- that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives;
- what part, if any, would be located underground;
- the facility is consistent with regional plans for expansion of the appropriate grid of the utility systems serving the state and interconnected utility systems;
- the facility would serve the interests of utility system economy and reliability;
- that the location of the proposed facility conforms to applicable state and local laws;
- that the facility would serve the public interest, convenience, and necessity;
- that DEQ has issued all necessary decisions, opinions, orders, certifications, and permits; and,

- that the use of public lands for location of the facility was evaluated, and public lands were selected whenever their use is as economically practicable as the use of private lands (75-20-301[1], MCA).

S.3.3 BLM Requirements

BLM has responsibility to issue ROW grants for electric transmission lines on BLM-administered lands in accordance with the Federal Land Policy and Management Act of 1976 and regulations at 43 CFR Part 2800.

A ROW grant provides for the construction, operation, maintenance, and termination of a specific project for a specific period of time. Before issuing a ROW grant, BLM will:

- complete a NEPA analysis or approve a previously completed NEPA analysis;
- determine whether the project complies with Federal and State laws and land use plans;
- consult with other governmental entities;
- hold public meetings if sufficient public interest exists; and
- take any other action necessary to fully evaluate and decide whether to approve or deny the application.

It is BLM's policy to encourage proponents to locate projects within designated or existing ROW corridors to the maximum extent feasible. However, no designated or existing ROW corridor is present on approximately 0.3 mile of BLM land that would be crossed.

S.3.4 NEPA/MEPA Process

Initially, the DOE considered an environmental assessment (EA) to be the appropriate level of review under NEPA for the proposed Project while DEQ considered the appropriate level of review for MEPA to be an EIS analysis. DOE issued a "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Montana Alberta Tie, Ltd." in the *Federal Register* on November 18, 2005 (70 FR 69962). In addition, DOE mailed a copy of the notice to each owner of land within and adjacent to the MATL-proposed corridor. Names were obtained from Montana land ownership records.

DEQ and DOE hosted public meetings in December 2005 and DEQ hosted a public meeting in June 2006. At these meetings the public was asked to identify issues and concerns to be addressed during the review. During each meeting, MATL and DEQ representatives presented briefings. Maps and other information were available for review, and representatives from each agency were available to discuss the project, answer questions, and receive public comments.

Meeting dates and locations were:

- Conrad on December 5, 2005
- Great Falls on December 6, 2005
- Cut Bank on December 7, 2005
- Cut Bank on June 26, 2006

In March 2007, the agencies published a document titled *Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line* that served as a Draft EIS for DEQ and an EA for DOE (March 2007 document). In order to receive public comments, DEQ and DOE hosted three public hearings after the March 2007 document was issued:

- Conrad on March 27, 2007
- Cut Bank on March 28, 2007
- Great Falls on March 29, 2007

Based on comments received on the March 2007 document relating to land use and potential effects on farming, DOE determined an EIS to be the appropriate NEPA compliance document. Accordingly, on June 7, 2007, DOE published a Notice of Intent to Prepare an EIS and to Conduct Scoping in the *Federal Register* (72 FR 31569) and invited additional comments for a 30-day period. Throughout the scoping processes, stakeholders submitted comments via letters, phone calls, and emails.

DEQ decided to prepare a Supplemental Draft EIS to address issues raised in comments on the March 2007 document. Comments received on that document indicated additional analysis was needed to describe the costs of farming around the proposed structures and to compare these costs to the additional costs associated with alternative locations for the line. In addition, substantial changes to state tax law were enacted during Montana's May 2007 special legislative session which changed the analysis of socioeconomic impacts.

Under MFSA, the Montana Department of Transportation (MDT); Montana Department of Natural Resources and Conservation (DNRC); Montana Fish, Wildlife and Parks (FWP); Montana Department of Revenue; and the Montana Public Service Commission are required to report to DEQ information related to the impact of the proposed project on each agency's area of expertise. The report may include opinions on the advisability of granting, denying, or modifying the certificate (75-20-216[6], MCA). Other agencies having interest or responsibility in the project approval process include the Montana State Historic Preservation Office (SHPO), U.S. Department of Agriculture Farm Service Agency, and the U.S. Fish and Wildlife Service (FWS).

Based on comments received from the participating agencies and the public, the following issues and concerns were identified:

(1) impacts on farming, ranching, and other land uses such as difficulties and hindrances of farming and spraying around the transmission line structures, potential for interference with Differential Global Positioning System (DGPS)-guided farm equipment, potential for noxious weed growth, interference with existing and future pivot or mechanical irrigation systems, and additional fencing needs;

(2) impacts on protected, threatened, endangered, special status, and sensitive animal and plant species and their critical habitats, such as increased perch opportunities for birds of prey that could result in increased predation on species such as the swift fox and sharp-tailed grouse, disturbance of rare plant species, interference with migratory and feeding flight paths of waterfowl, avian mortality from bird strikes, and potential impacts on critical wildlife habitats;

(3) impacts on floodplains and wetlands, such as size and degree of impacts on known and delineated floodplains, wetlands, waters of the U.S., and other special aquatic sites;

(4) impacts on cultural and historic resources including potential disturbance of Native American settlements and religious sites;

(5) impacts on human health and safety related to minimum ground clearance of the line, corona effects (including audible noise and radio and television interference), and other electromagnetic field effects;

(6) impacts on air, soil, and water, such as soil erosion and resultant sedimentation to surface water, mass movement of unstable geologic materials and soils, reclamation constraints, and impacts on existing air quality;

(7) visual impacts to homes, historic homesteads, and tribal landscapes;

(8) socioeconomic impacts to taxes and disturbance of residential property in Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties from the construction and operation of the line; and

(9) impacts from development of wind or other generation projects that could occur as reasonably foreseeable future actions.

On September 6, 2007, DOE invited the BLM to participate as a cooperating agency in the preparation of the EIS. DOE requested BLM's involvement to address BLM's authority to approve MATL's request for a ROW grant and the proposed Project's relationship to relevant BLM land use plans. The BLM accepted the invitation to be a cooperating agency on October 12, 2007.

The agencies published a State Supplemental Draft EIS and Federal Draft EIS (referred to hereafter as the Draft EIS) in February 2008. Following publication of the Draft EIS, the agencies held a 45-day comment period during which the public was invited to submit comments. Also during this time, the agencies held three public hearings, in Great Falls, Montana on March 11, 2008, in Cut Bank, Montana, on March 12, 2008 and in Conrad, Montana on March 13, 2008.

Three hundred fifty-two individuals and organizations submitted comments on the Draft EIS, either orally at public hearings or in writing. The agencies considered the comments received and provide their responses in Volume 2 of this Final EIS. Based on comments received from participating agencies and the public after the issuance of the Draft EIS, the following topics were identified as common themes or major issues and concerns:

- Avian and Wildlife Issues, including the quality of field surveys for wildlife, potential impacts on bird and wildlife habitat, potential impacts on birds from collisions with the transmission line, effects on flyways, and impacts of potential wind farms;
- Economic Issues, including the distribution of benefits and costs of the line and the line's effect on the cost of electric power;
- Farming Issues, including the issues farmers would face in having to farm around structures and how they would be compensated for their costs and inconvenience;
- Legal and Regulatory Issues related to NEPA, MEPA, Montana's MFSA, eminent domain, and other State and Federal requirements;
- Line Capacity Issues, including possible future increases in capacity and the ability of power to be shipped past the termination points of the MATL line;

- Line Issues, including its location, types of support structures, easement width, and the need for substations;
- Safety Issues related to clearance under the proposed transmission line and the safety of farming activities under and around the line;
- Socioeconomic Issues, including the expected impacts of the proposed Project and potential wind farms on local school enrollment, wages, and property tax revenues;
- Soils Issues, including concerns about potential compaction and erosion due to transmission line construction;
- Tax Issues, including questions about the taxation status of the proposed transmission line and affected farmland;
- Vegetation, Wetland and Weed Issues, including the potential for disturbance of wetlands and riparian areas, the potential for introduction of weeds, and the impacts of weed control;
- Visual Issues, including the effects of the transmission line and potential wind farms on views in and near Glacier National Park and the Rocky Mountain front;
- Wind Farm Issues, including potential impacts of bird and bat collisions, the effects of wind farms on views, and the potential for mitigation of wind farm impacts.

The agencies revised the EIS in response to comments, to correct errors, and to incorporate new information obtained since the Draft EIS. Principal changes in the Final EIS include:

- Updating of information and revision of analyses due to revisions made to MATL's MFSA application since publication of the Draft EIS. Principal revisions to the application are an increased right-of-way width, an increased commitment to use of monopoles on diagonal crossings of cropland and Conservation Reserve Program (CRP) land, an increased minimum line height over cropland to ensure safe operation of farm equipment, and a revised proposal for landowner compensation, including an alternative dispute resolution process.
- Analysis of minor variations to several Local Routing Options and one variation to a short segment of Alternative 2. These were evaluated due to specific concerns brought to the agencies' attention by affected landowners.
- Inclusion of additional information about migratory birds in the region.
- Inclusion of new information on wetlands locations and acreage in Teton County that became available after the publication of the Draft EIS.
- Updated analysis of costs for farming around transmission line structures, reflecting spring 2008 farming input costs and crop prices.

- Inclusion in the cumulative impacts analysis of new information on bird and bat mortality at the Judith Gap Energy Center.

In addition, the Final EIS includes identification of the agencies' preferred alternative.

The agencies will use this EIS in their respective decision making processes. Federal agency decisions will be issued subsequent to this EIS in the form of a Record of Decision for each agency or as a letter of concurrence, no sooner than 30 days after this Final EIS is available. DEQ may not make a final decision sooner than 15 days after the final EIS is available and may time a decision on whether to issue a certificate to coincide with the decisions of the Federal agencies.

S.4 Alternatives Description

This EIS evaluates the proposed Project, three action alternatives, several Local Routing Options, and minor variations. The No Action alternative, designated Alternative 1, reflects the status quo and serves as a benchmark against which the proposed Project and other alternative actions can be evaluated. The proposed Project is Alternative 2 (**Figure S-1**).[2] Alternative 3 was developed by MATL in response to a single siting criterion under MFSA that gives consideration to paralleling existing utility corridors. Alternative 4 describes an additional alignment (**Figure S-1**) that the Agencies developed based on comments and issues raised during the scoping process.

The Local Routing Options and minor variations, which could apply to Alternative 2 and in some instances to Alternative 4, were based on landowner or MATL input and comments on the March 2007 document and the Draft EIS. The agencies' preferred alternative consists of portions of Alternatives 2 and 4 and some local routing options as shown on **Figures S-4**, **S-5**, and **S-6** (See Section S.4.7)

S.4.1 Details Common to All Action Alternatives

Two types of transmission line support structures would be used: H-frame structures made of laminated wood poles, round wood poles, or steel structures for special applications, and metal monopoles (**Figure S-2**). The typical span between structures of either type (ruling span) would be about 800 feet, but could range from 500 feet to 1,600 feet. Approximately six to seven (average of 6.6) structures per mile would be required for an 800-foot ruling span.

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2 *Throughout this EIS, many references are made to the Project study area and analysis area. The Project study area is the area that includes the proposed and alternative alignments and areas where roads may be built or improved. The study area was defined by MATL in its MFSA application to DEQ. The analysis area is the area evaluated for each resource. Different resources have different analysis areas. For some resources, the analysis area is the entire study area. For other resources, it may be a smaller area defined by the potential extent of impacts or a larger region defined by the units (for example, counties) for which relevant data are available.*

Either type of support structure would incorporate 230-kV design standard synthetic insulators, hardware, and ground wires to provide nearly corona-free operation, as well as reduce audible noise and radio and television interference. The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands[3], expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum clearance of 27.2 feet for the safe operation of farm equipment under the line. Spacing between the two poles of a typical 65-foot high H-frame structure would be about 23 feet. A typical monopole would be about 90 feet high.

MATL would install bird strike diverters or similar warning devices in high risk areas such as lakes, river crossings, wildlife refuge areas, and high ridge crossings. MATL would comply with appropriate regulations of the Federal Aviation Administration (FAA) and install FAA-recommended colored aerial markers for aviation safety at river crossings. In addition aerial markers would be installed at major pipeline crossings as determined by consultation with pipeline companies.

MATL proposes to construct a new substation on farmland or range/pasture land approximately 10 miles south of Cut Bank at a location next to the site where NaturEner USA has begun building the Glacier Wind Project (formerly known as the McCormick Ranch Wind Park). The approximate location of the substation would be in the southeast quarter of Sec. 27 T32N R5W. The interconnection at the existing Great Falls Switchyard would require NWE to enlarge the switchyard to accommodate the MATL tie line and other proposed lines. The expanded Great Falls 230-kV Switchyard would be located on farmland or range/pasture land. MATL has submitted a copy of an executed interconnection agreement with NWE to the agencies as an addendum to the MFSA application.

MATL anticipates only minimum development of access roads to construct, operate, and maintain the line because most of the proposed Project ROW would be accessed from public roads, existing two-track roads (unmaintained trails), and farm fields. MATL would reclaim any new access roads in coordination with landowners and appropriate agencies and to DEQ environmental specifications. MATL does not anticipate maintenance of these access points with the exception of certain gate installations.

[3] In this EIS, farmland, cropland, and cultivated land are used interchangeably.

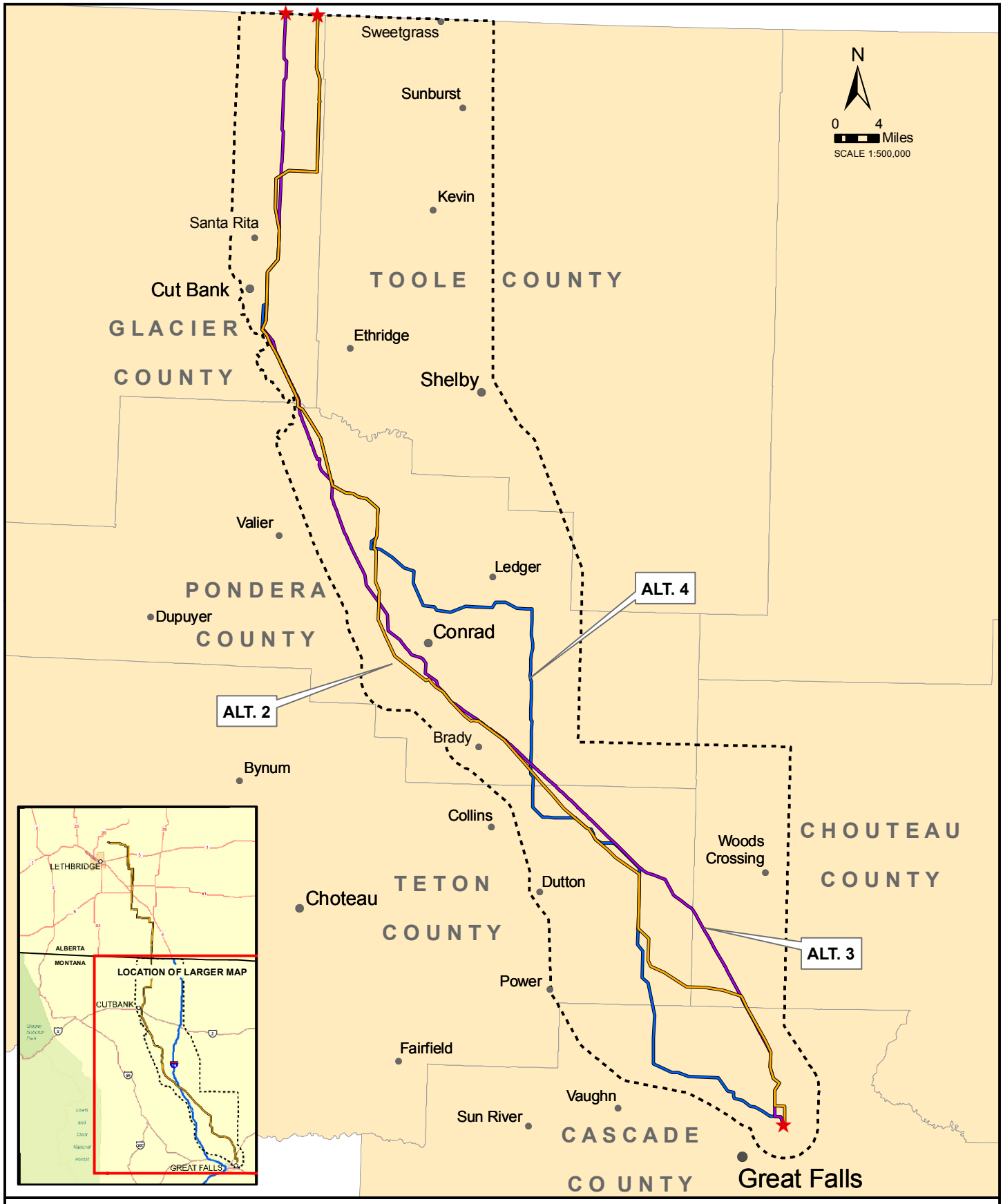


FIGURE S-1
PROJECT STUDY AREA

LEGEND

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-1_MATL_Project_Study_Area_012408.mxd

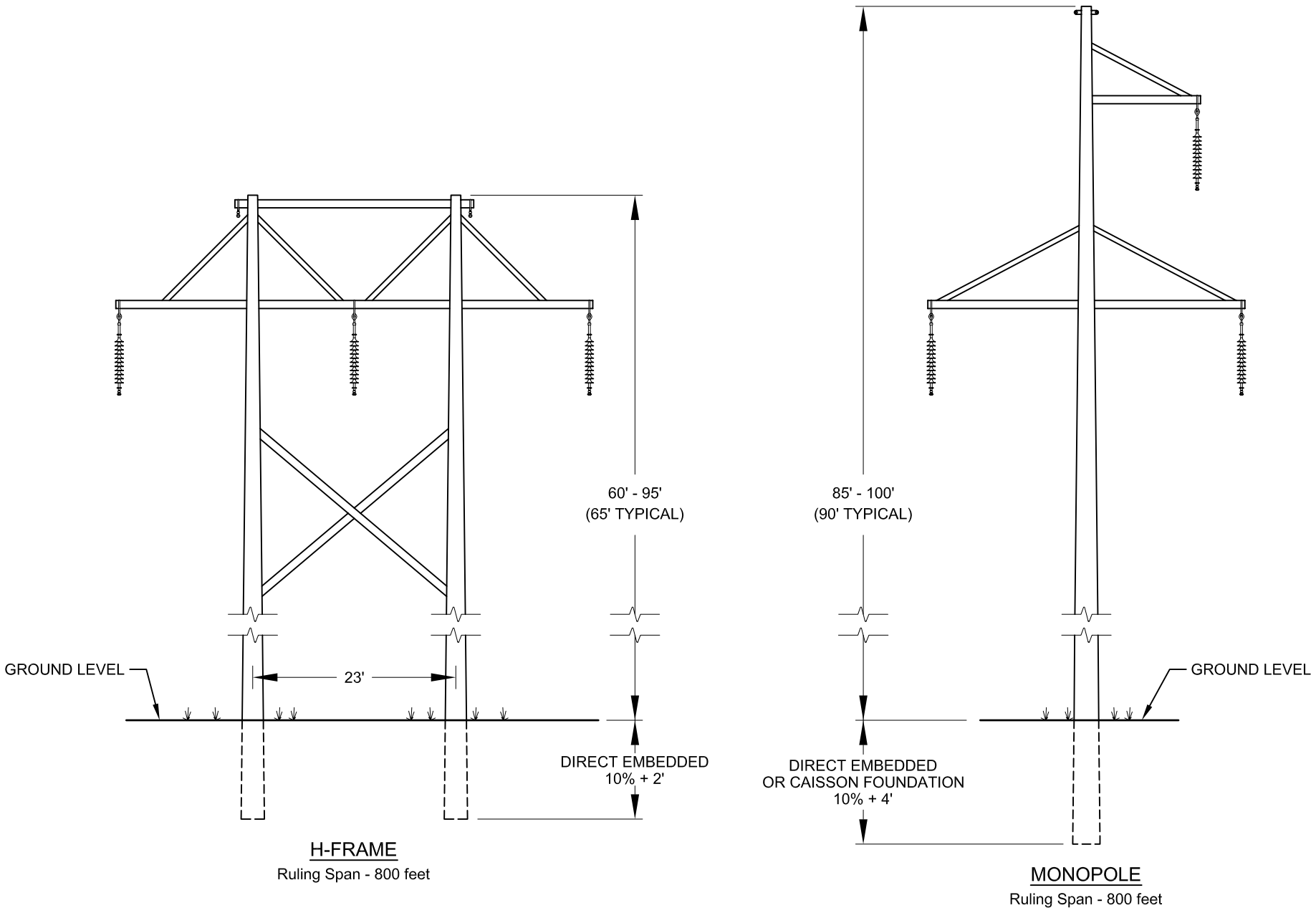


FIGURE S-2
PROPOSED MATL POWERLINE
TYPICAL SUPPORT STRUCTURES

Figure S-2_Typical Support Structures.dwg - DWH - 01/22/2008

Construction is anticipated to take 4 to 6 months to complete. A summary of construction tasks is included in **Table S-1**. Additional tasks would include the following:

- Pre-Construction: Environmental permitting, cultural resource clearance, final transmission structure siting, engineering design, land procurement, various utility studies, and major procurement.
- Surveying: survey control, alignment centerline location, and profile surveys. Light Detection and Ranging (LIDAR) would be used to provide much of this information. LIDAR is an airborne laser mapping technology that directly measures the shape of the earth's surface under the aircraft. LIDAR generates wide-area elevation information that can be used to make models showing details such as buildings, trees, and power lines.
- Geotechnical Survey: Investigations would be completed at selected key locations to establish foundation requirements. The geotechnical information is used to reduce problems during erection of the structures and assist with the cost estimate and bidding process for the project.
- Access Planning and Preparation: Crews would gain access primarily from existing public roads and trails as well as within the transmission line ROW. Graded surface access roads are planned for a few steep hillsides. Existing roads and trails would be left in comparable or better condition than before construction or to those conditions specified by landowners during easement lease negotiations.

  Gates would be installed where fences cross the ROW. Locks would be installed at landowner's request. Gates not in use would be closed but not locked unless requested by the landowner.

- Delivery and Assembly: Structure components, including poles, X-braces, cross-arms, insulators, and hardware for structures would be delivered and assembled.

  For H-frame structures poles would be set directly in holes and backfilled with compacted native soil or gravel. Any excess soil would be evenly regraded around the structure or hauled off site, depending on the landowner's preference. At heavy angled and dead-end structures, cast-in-place concrete footings would be installed.

  For monopoles after the pole is set in the hole, cement would be used, instead of soil, to backfill within approximately 1 foot of the soil surface. The salvaged topsoil material would be replaced on top of the cement. Any excess soil would be evenly regraded around the structure or hauled off site, depending on the landowner's preference.

TABLE S-1
SUMMARY OF CONSTRUCTION TASKS AND REQUIRED RESOURCES AND EQUIPMENT

Task	Crew Size	Typical Wage Level ($/hour)[a]	Equipment
Access Fencing / Reclamation	2	$15 to $18	¾ –ton post pounder
Framing	6	$17 to $20	Teleking 5-ton crane, Bobcat, 1-ton crewcab pickup
Setting	8	$17 to $20	330 Texoma digger, 35-ton setting crane, gravel truck, concrete truck, air compressor w / tamper, Bobcat, (2) 1-ton crewcab pickups
Anchoring	3	$20 to $22	radial arm digger or retrofitted trench hoe
Material Handling	2	$17 to $20	(2) trucks
Pole Hauling	3	$20 to $22	pole truck, pickup
Stringing	31	$20 to $26	Tensioner, puller, 30-ton crane and pickup, soft line winder and pickup, cat pulling sock line and pickup, crane and pickup, flat deck and small crane, rider pole crew digger, pole truck

Notes:
[a]Wage levels extrapolated from "Montana Prevailing Wage Rates – Heavy Construction" Rates Effective March 10, 2006

- Conductor Installation: After erecting structures, conductor and ground wires would be installed. Large reels of conductor and overhead ground wire would be delivered to pre-selected pulling and tensioning sites (about every 2 miles) along the transmission line alignment. Adjustments made during tensioning would prevent the cable from sagging too much to comply with the applicable regulations.
- Reclamation: All disturbed areas would be reclaimed. These efforts typically include gate repair as necessary, regrading and revegetation, and waste material removal.

MATL proposes to commence construction as soon as all property rights are obtained and all necessary state and Federal authorizations are issued. MATL may not begin any construction activities unless and until it obtains all required permits.

MATL would design, construct, operate, and maintain the proposed transmission system in accordance with the National Electrical Safety Code (NESC), U.S. Department of Labor Occupational Safety and Health Act (OSHA) Standards, and other requirements and guidance as appropriate.

Construction staging areas would be located in previously disturbed areas whenever possible. In general, construction staging areas would either be located in communities near the ROW where rail and truck service are available or in rural areas where equipment could be unloaded from tractor-trailers. Construction staging areas would be on private land and would be subject to landowner negotiations and agreements. Construction staging areas would likely be located near Cut Bank, Valier, Conrad, Brady, Dutton, or Great Falls. MATL expects that staging areas would be established in three locations, with each staging area occupying about 5 acres. However, a few smaller areas (about 2.5 acres) might be used.

NWE and Alberta Electric System Operator system dispatchers would direct normal line operations, using MATL's facilities to operate circuit breakers, determine the amount of power required to serve the loads and configure the power system accordingly, schedule the proper generation amount, and monitor the power system to ensure reliable service. Circuit breakers would operate automatically to ensure safe transmission line operation. Normal farming and other activities would be permitted on transmission line ROWs if these activities do not interfere with line operation and maintenance or create safety problems.

Maintenance programs would include routine aerial and ground patrols. Aerial patrols would be conducted annually and as needed to check for damage to conductors, insulators, or structures after severe wind, ice, wild fires, or lightning storms. Ground patrols generally would occur every 5 years to detect equipment in need of repair or replacement. Ground patrols and subsequent repair activities would be scheduled to minimize crop and property damage. Noxious weed control plans would help guide herbicide treatments. Vegetation clearing may also be required in certain areas to minimize fire hazards.

For emergencies, crews would respond promptly to repair or replace damaged equipment. MATL would meet with respective landowners to arrange compensation for any damages incurred during emergency repair operations.

In its applications to DEQ and DOE, MATL has committed to project-specific environmental protection measures that may be used to avoid or reduce the intensity and/or duration of the impacts to resources. MATL proposes to implement a worker education program and on-site monitors to ensure that the site-specific environmental protection measures are strictly followed. Other guidance MATL proposes to use includes Western Area Power Administration's (WAPA) Construction Standard 13 (WAPA 2001), and Raptor-Safe Power Line Construction Practices (Edison Electric Institute [EEI] and Avian Power Line Interaction Committee [APLIC] 1996).

S.4.2 Alternative 1 — No Action

Under Alternative 1 the proposed Project would not be approved or constructed. Existing electrical transmission service in north-central Montana would be maintained and operated at its current level. In addition, companies with plans to construct new generation facilities in the analysis area would need to consider other transmission alternatives or not build them.

S.4.3 Alternative 2 — MATL's Proposed Project

Alternative 2 is to construct and operate a 129.9 mile long, 230-kV merchant transmission line between Great Falls, Montana, and Lethbridge, Alberta, as described in MATL's application to DEQ, its application to DOE for a Presidential permit and its application to the BLM for a ROW grant. The proposed alignment would have an operational ROW width of 105 feet. The line would extend from the expanded 230-kV Great Falls Switchyard north of Great Falls to a proposed new substation south of Cut Bank, and then north to the Montana-Canada border at the western edge of the Red Creek Oil Field. Monopole structures would be used on about 56 miles of the line where it would cross cropland and CRP land diagonally. On the remaining 74 miles, H-frame structures would be used for this alternative.

S.4.4 Alternative 3 – MATL B

Alternative 3 would be 121.6 miles long and would be similar to Alternative 2 in that the width of the ROW, types of access roads, implementation, conductors, markers, substations, construction, operations, maintenance, and MATL's proposed environmental protection measures would be the same as those described for Alternative 2 and in details common to all alternatives. The Alternative 3 alignment would be different from Alternative 2 in that it would generally parallel an existing 115-kV transmission line along the entire route from the 230-kV Great Falls Switchyard to a substation near Cut Bank and use only H-frame structures. Alternative 3 was developed by MATL in response to a single siting criterion under MFSA that gives consideration to paralleling existing utility corridors (Circular MFSA-2). This alternative alignment was not intended to address potential land use issues or maintenance issues but is the shortest and potentially the least costly alternative under consideration.

S.4.5 Alternative 4 – Agencies' Alternative

Alternative 4 was developed by the agencies to address public concerns regarding line interference with farming activities and close proximity to residences. This alternative would be 139.6 miles long and would be similar to Alternative 2 in that width of the ROW, types of access roads, implementation, conductors, markers, substations, construction, operations, maintenance, and MATL's proposed environmental protection measures would be the same as those described for Alternative 2 and in details common to all alternatives. The differences in environmental impacts between Alternatives 2 and 4 are discussed in Section S.6.

The Alternative 4 alignment would use portions of the Alternative 2 alignment from north of Conrad to the Montana-Alberta border. In other areas it would maximize the use of range and pasture land, where available. Where cultivated land would be crossed, it would generally be located along field or strip boundaries. Alternative 4 would require the use of monopole structures on all 88.9 miles of cropland and CRP land, not just where cropland and CRP land are crossed on the diagonal as in Alternative 2.

Although Alternative 4 is analyzed as a whole, the agencies could select some or all parts of this alternative or other alignments (i.e., the Local Routing Options described in the following section) whose environmental impacts have been considered in this EIS.

MATL has indicated that because Alternative 4 is longer than the other alternatives this alternative would be more expensive than Alternatives 2 and 3. MATL estimates that Alternative 4 would result in up to a 12 month delay and a $5 million increase in total costs. MATL has stated that if Alternative 4 is selected, the project would be unlikely to be built since it would have difficulties obtaining adequate financing for the project due to additional costs and delays. Comments received from landowners indicate that Alternative 4 would minimize impacts to farmland.

S.4.6 Local Routing Options

Based on public comments received on the March 2007 document and the Draft EIS, the agencies worked with landowners to refine Alternatives 2 and 4 to address landowner concerns related to costs, impacts to farming, impacts to other land uses, and proximity to residences. They developed 11 Local Routing Options for Alternative 2 (**Figure S-3**), a subset of which could also be included in Alternative 4. Subsequent to the publication of the Draft EIS, the agencies developed minor variations to four of the Local Routing Options to help mitigate and minimize impacts to existing and future land uses. One short variation to Alternative 2 was developed north of the Great Falls 230-kV Switchyard (Great Falls 230-kV Switchyard Variation). The suggested minor variations are described in more detail in the sections below.

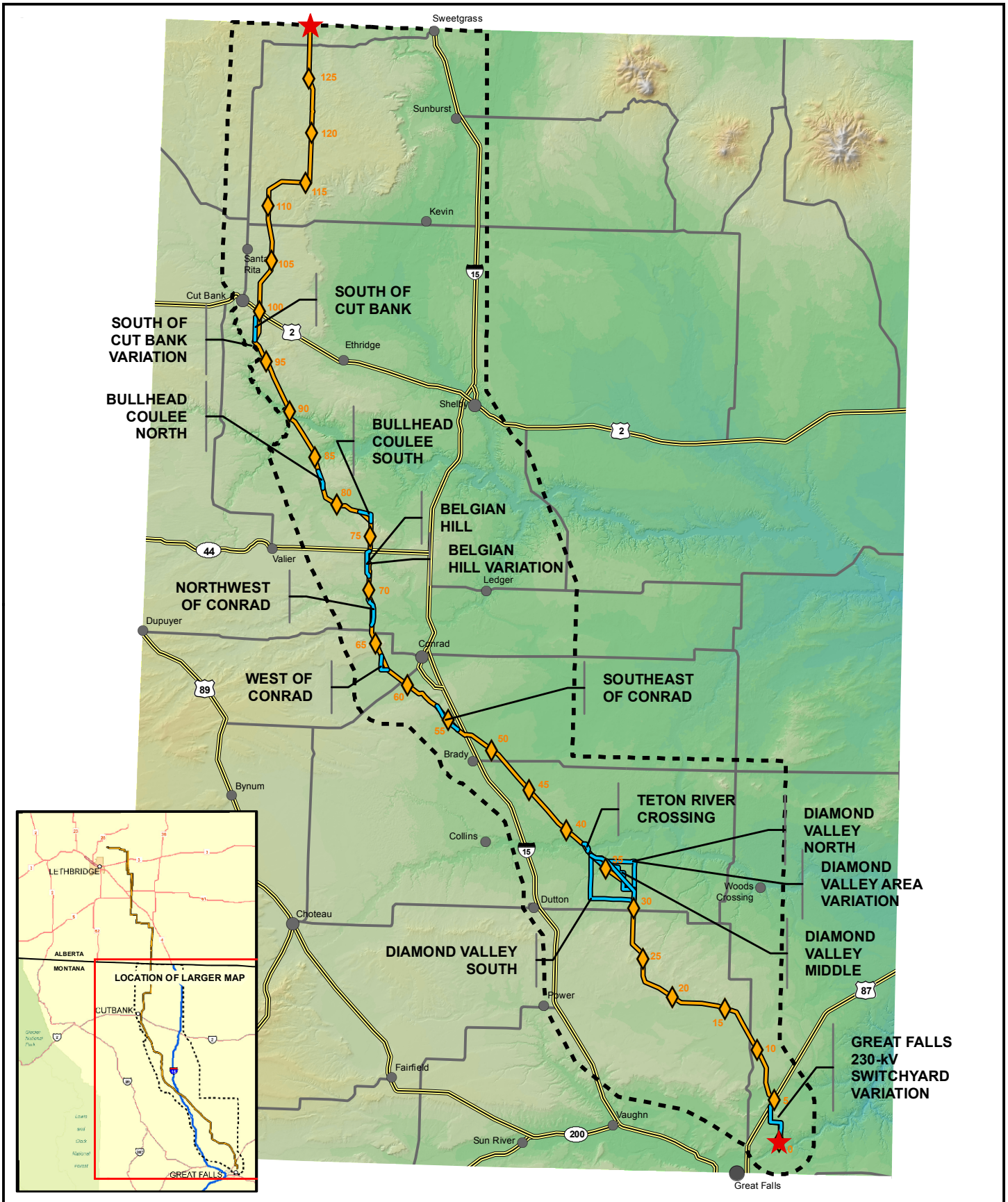


FIGURE S-3
LOCAL ROUTING OPTIONS AND VARIATIONS

GIS map by Ed Madej -TTEMI-HE FigS-3_MATL_Local_Routing_Options_All_091208.mxd

The Local Routing Options would not change environmental impacts for most resource areas. Several of the Local Routing Options would result in fewer impacts on crop production, including lower costs for farming around transmission line structures.

Diamond Valley Local Routing Options. Three Local Routing Options (Diamond Valley South, Diamond Valley Middle, and Diamond Valley North) were identified for the Diamond Valley area. These are alternative alignments for one segment of the line, applicable to both Alternatives 2 and 4. All three options would result in less diagonal crossing of farm fields, but two options (Diamond Valley Middle and Diamond Valley North) could interfere with aerial spraying because they would create acute angles with the existing NWE 115-kV transmission line. Also, the Diamond Valley North option could require relocation of a grain bin to avoid safety problems. Compared with Alternative 2, the Diamond Valley North option would reduce by one the number of residences within 1/2 mile of the alignment; the Diamond Valley Middle option would increase by one the number of residences within this distance; and the Diamond Valley South option would decrease the proximity of the line to one residence.

In comments on the Draft EIS, landowners suggested a variation on Local Routing Options in the Diamond Valley area as indicated on **Figure S-3.** It would better avoid one residence but would be slightly longer than Alternative 2. It would still involve crossing cultivated land with monopole structures. Compared to Alternative 2, it would cross an additional 1.3 miles of farmland (5.1 miles for Diamond Valley minor variation versus 3.8 miles for Alternative 2). MATL has indicated it would attempt to locate structures on field boundaries regardless of the selected route, but limitations in span length and possibly line tension would result in some structures being placed in mid-field locations.

Teton River Crossing Local Routing Option. The Local Routing Option for the Teton River Crossing Area could apply to Alternatives 2 and 4. It would allow one transmission line structure to be on a slightly more elevated terrace that would avoid an area that is reported to have flooded in 1964. It would also locate structures at the edge of fields to reduce interference with farming. It could, however, result in some clearing of tall growing riparian vegetation.

Southeast of Conrad Local Routing Option. The Southeast of Conrad Local Routing Option for Alternative 2 would reduce the crossing of cropland, but would increase by one the number of residences within 1/2 mile of the alignment and would increase the chance of encountering cultural resource sites.

West of Conrad Local Routing Option. The West of Conrad Local Routing Option for Alternative 2 would decrease the diagonal crossing of cropland and reduce potential interference with aerial crop dusting. A landowner has suggested that monopoles be used along field edges of this Local Routing Option. When presented with a choice

between H-frame structures at the edge of the field and monopoles crossing the fields diagonally, the landowner indicated that the monopole option would be preferable (Jones 2008).

Northwest of Conrad Local Routing Option. The Northwest of Conrad Local Routing Option for Alternative 2 would decrease the diagonal crossing of cropland, but increase the chance of encountering cultural resource sites. This Local Routing Option would increase the use of private range and pastureland instead of cropland (**Figure S-3**).

Belgian Hill Area Local Routing Option. The Belgian Hill Road area Local Routing Option for Alternative 2 would increase the distance between the transmission line and nearby residences, slightly reduce the diagonal crossing of cropland, and reduce but not fully avoid the crossing of irrigated fields. Portions of this option also could be used for Alternative 4. Like the Local Routing Option for Alternative 2, the option for Alternative 4 would increase the distance between the transmission line and nearby residences and reduce but not fully avoid the crossing of irrigated fields. The option for Alternative 4 would also decrease by one the number of residences within ½ mile of the alignment and avoid diagonal crossing of farmland.

In comments on the Draft EIS, the agencies learned of plans to develop a center-pivot irrigation system in the vicinity of the Belgian Hill Local Routing Option described in the Draft EIS. Thus, a minor variation resulted in the Local Routing Option being revised (**Figure S-3**). The Local Routing Option would remain about 0.5 mile from houses along Belgian Hill Road. However, it would increase the amount of cropland crossed by approximately 0.64 mile and add 0.50 mile of total line length compared to Alternative 2.

Bullhead Coulee South Local Routing Option. The Bullhead Coulee South Local Routing Option for Alternatives 2 and 4 would avoid interference with the planned location of a wind turbine unrelated to the proposed MATL transmission line, but would increase the potential for soil erosion.

Bullhead Coulee North Local Routing Option. The Bullhead Coulee North Local Routing Option for Alternatives 2 and 4 would reduce interference with farming. A minor variation to this Local Routing Option since the Draft EIS would reduce farming costs by placing more structures on field edges and has greater potential for landowner acceptance.

South of Cut Bank Local Routing Option. The South of Cut Bank Local Routing Option for Alternatives 2 and 4 would follow property boundaries better, would be located farther away from one residence, and would have greater potential for general local acceptance. This routing option would generally parallel Alternative 2. The agencies identified a minor variation for the southern ¼ mile of the South of Cut Bank Local

Routing Option that would eliminate several angle structures and keep the transmission line along the section line.

Great Falls 230-kV Switchyard Variation. A variation to Alternative 2 was developed by MATL and two landowners north of the Great Falls 230-kV Switchyard to mitigate and minimize impacts to existing and future land uses in this area. The variation would apply to Alternative 2 for the first approximately 5.1 miles of the alignment north of the Great Falls Switchyard. The variation involves constructing approximately 4.3 miles of the line using monopole structures capable of supporting two 230-kV transmission lines (double-circuit 230 kV line construction). The remaining 0.8 mile, from MP 4.3 to MP 5.1 would remain a single-circuit H-frame construction but would be relocated across to the northwest side of Highway 87.

The minor variation would also involve moving the Alternative 2 alignment to the east side of the existing 115-kV line between MP 0.9 and MP 1.9. The existing distribution line would be removed between MP 1.4 and MP 1.9 to provide the room for MATL's 230-kV alignment. MATL would pay for the existing distribution line to be placed underground or for the construction of a new overhead distribution line, depending on the landowner's permission and preference.

S.4.7 The Agencies' Preferred Alternative

The preferred alternative consists of portions of Alternatives 2 and 4 and some local routing options as shown on **Figures S-4, S-5,** and **S-6** and described in detail in Section S.6.3. It begins at the Great Falls Switchyard and follows Alternative 4 for 27.3 miles. From that point to Milepost 103.1 it primarily follows Alternative 2, but includes the Diamond Valley South, Teton River, Southeast of Conrad, Northwest of Conrad, Belgian Hill, Bullhead Coulee South, Bullhead Coulee North, and South of Cut Bank Local Routing Options. North of Milepost 103.1 the preferred alternative coincides with Alternatives 2 and 4 to join with Canada's approved route at the border crossing. The total length of the preferred alternative is 133.5 miles and would consist of about 83.6 miles of monopoles and 49.9 miles of H-frames.

The DEQ selected the preferred alternative because it represents the best balance between avoidance of impacts to farmland, cost, avoidance of houses, public acceptance, and use of public lands. DOE has also selected the described alternative as its preferred alternative.

N

0 4 Miles

50

45

15

40

35

30

25

20

15

10

5

0

87

200

Dutton

Power

Vaughn

Woods Crossing

Great Falls

FIGURE S-4
AGENCIES' PREFERRED ALIGNMENT SOUTH

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-4_MATL_PREFERRED_Alignment_South_091208.mxd

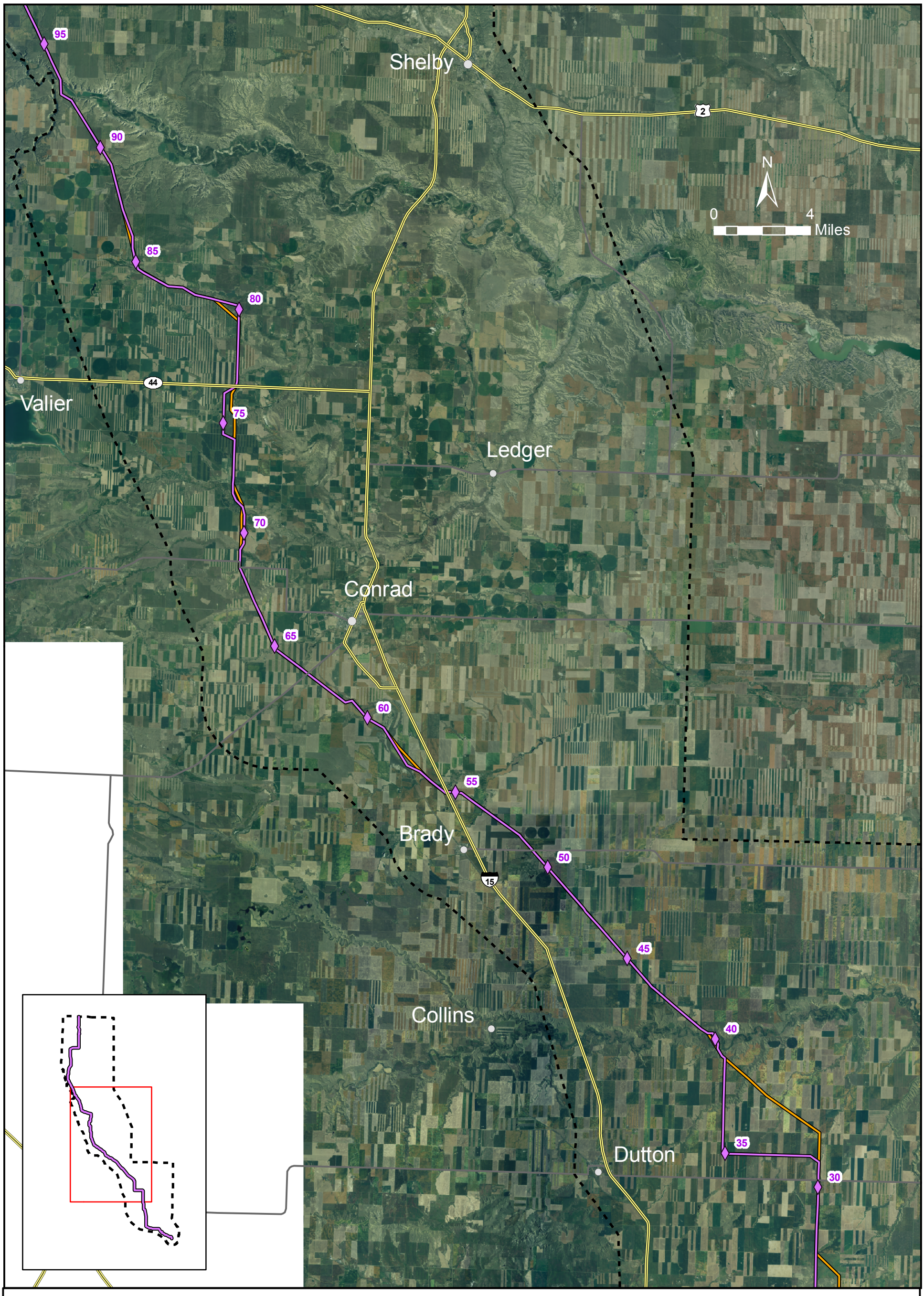


FIGURE S-5
AGENCIES' PREFERRED ALIGNMENT
MIDDLE

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-5_MATL_MTEDQ_PREFERRED_Alignment_Middle_091008.mxd

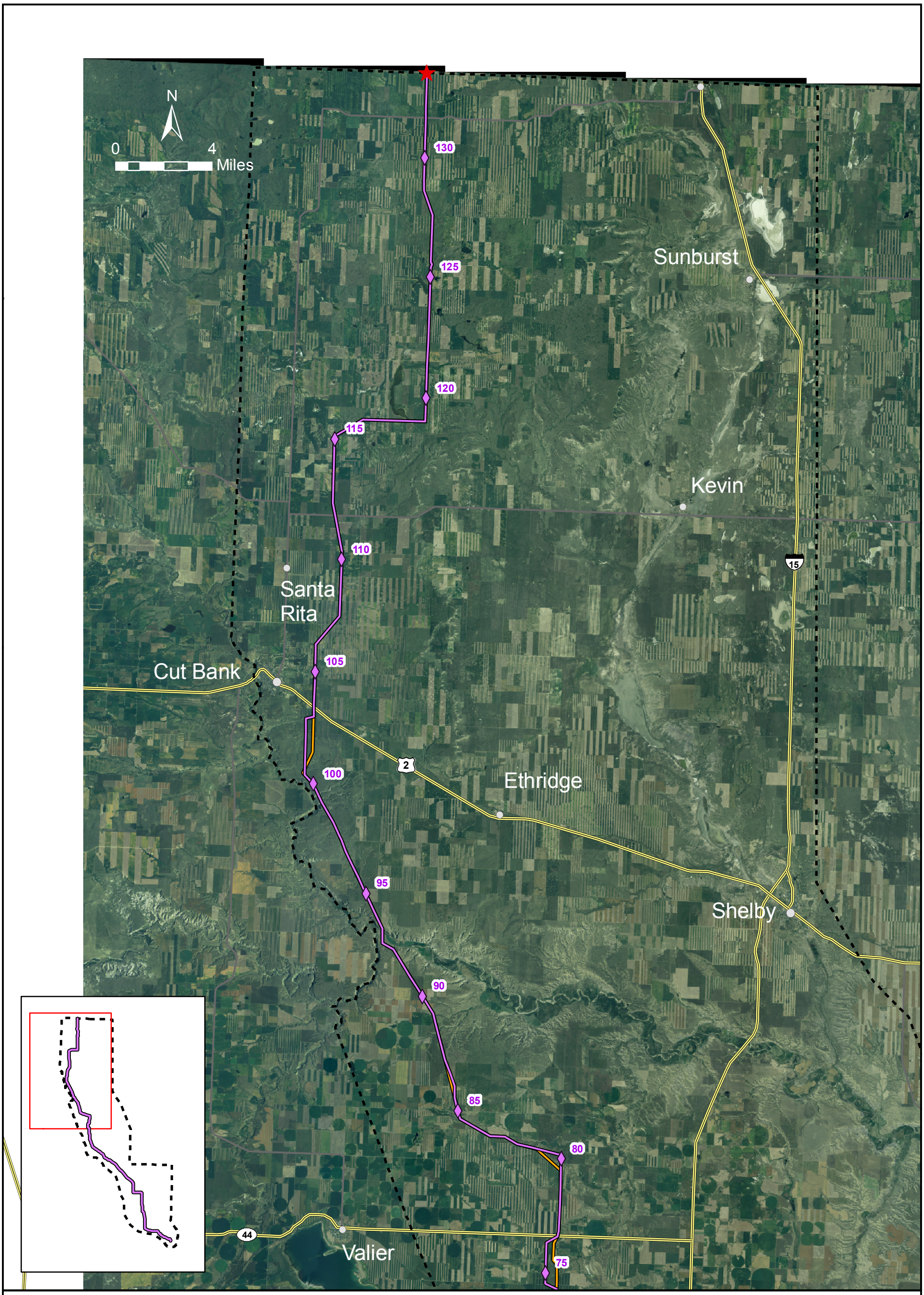


FIGURE S-6
AGENCIES' PREFERRED ALIGNMENT
NORTH

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-6_MATL_PREFERRED_Alignment_North_091208.mxd

S.4.8 Alternatives Considered But Dismissed

Several alignment and construction-detail alternatives were considered but eliminated from detailed study.

- Many additional local routing options
- MATL C alignment
- Building the line underground
- Unguyed, self-supporting angle and dead-end structures
- Requiring the use of helicopters to string the line
- Requiring monopole structures in all areas
- Cut Bank to Shelby alternatives
- NWE 115-kV transmission line rebuild alternative

Numerous local routing options were considered but eliminated from detailed analysis for one or more of the following reasons: did not address local land use concerns; did not reduce impact to farming; encountered greater geologic and topographic constraints compared to others being carried forward, would be more costly than the estimated cost savings to farmers, or would not reduce farming and land use impacts as well as others being carried forward.

The MATL C Alignment is in the MFSA application. It was dismissed from detailed study because it did not fully address issues raised during scoping. Specifically, although it would cross less cropland diagonally than Alternative 2, it would have crossed more farm land diagonally in the segment beginning south of Brady and continuing to approximately 10 miles north of Conrad. This alternative also would be located very close to several residences, and would not use as much range and pasture land, or parallel existing transmission lines as much as other alignments.

Building the line underground was dismissed because it would cost between two and 15 times more than overhead construction and because digging the trenches required to bury the line would result in greater construction disturbance to the land and require more time to install. The use of unguyed, self supporting angle and dead-end structures would reduce some of the impacts on land uses but this alternative was dismissed because of the substantially higher costs for these structures. Similarly, the use of helicopters to string the line would avoid the construction of some access roads but would significantly increase the cost of construction. Also, helicopters are most commonly used in extremely hilly terrain or in large marshy areas where ground access would be difficult. This alternative was dismissed because most of the study area is accessible from the ground.

The use of monopole support structures instead of H-frame structures for the entire length of the line was dismissed because of added costs with little additional land use benefits on rangeland. However, the use of monopoles is now proposed by MATL for about 56 miles of cropland and CRP crossed diagonally under Alternative 2 and is also analyzed for all cropland and CRP crossings (89 miles) under Alternative 4.

Two alternatives between Cut Bank and Shelby were identified but dismissed. In one alternative, MATL would build the proposed line from the border to Shelby where it would tie into WAPA's transmission system. Energy producers or other subscribers would then have to pay MATL for the use of its project between the border and Shelby and then pay WAPA for the use of its transmission system from Shelby to Great Falls. This alternative was dismissed because it would result in a substantial increase in transmission costs for those proposing to ship energy into the Great Falls area. In the second alternative, MATL and WAPA would jointly rebuild portions of WAPA's existing Shelby-Great Falls 230-kV line to a double circuit configuration. However, WAPA declined to pursue this alternative because it would reduce the reliability of its system.

MATL also considered an alternative that would combine its proposed transmission line with a rebuilt and updated version of NWE's existing 115-kV line between Cut Bank and Great Falls. This alternative was dismissed because it would create unacceptable operating logistics to maintain electric service while the line was being rebuilt and upgraded and because of the economics associated with the partnership.

S.5 Affected Environment

The 1,444,790-acre Project study area (Figure S-3) contains sparsely populated semi-arid rolling hills, gentle ridges, and plateaus bisected by alluvial corridors of the Marias and Teton rivers and their tributaries. The area has low topographic relief with elevations ranging from 4,372 feet above sea level in the northwest corner of the study area to about 3,016 feet above sea level on the Missouri River in the southeast corner of the area. Winters are extremely cold with desiccating winds and snow. May and June are the wettest months; however, perennial streams and rivers are sustained primarily from moisture derived from mountain snowpack.

The bedrock geologic units are primarily glaciated Cretaceous shales and sandstones. This region includes portions of eight hydrologic subbasins in Montana, all of which contribute to the lower Missouri River Basin. The primary surface water features in the analysis area are Cut Bank Creek, the Marias River and the Dry Fork Marias River, Pondera Coulee, the Teton River, Benton Lake, Hay Lake, and the Missouri River. Isolated prairie potholes, lakes, and stock reservoirs are scattered throughout the analysis area.

The majority of the land (90 percent) is privately owned, with the remainder being owned or managed by state, Federal, and local government agencies. Over 88 percent of the Project study area is considered agricultural lands, including irrigated and non-irrigated cropland and rangeland. Some dry land crops and grazing occur on state and Federal lands. Management of agricultural lands can involve the use of Differential Global Positioning System (DGPS)-guided farming equipment and vehicles (e.g., tractors, sprayers, combines) and other equipment used for irrigation, aerial and ground based spraying, plowing, seeding, fertilizing, and harvesting. These activities occur on 73 percent of the Project study area. This agricultural land base gives the landscape its characteristic and dominant patterns of linear strips of dryland cultivation and circular and rectangular shapes associated with irrigated fields. Views are typically expansive throughout the entire Project area, extending across rolling uplands and plains to the Rocky Mountain Front and island mountain ranges such as the Sweet Grass Hills and Highwood Mountains. Portions of Cascade, Chouteau, Glacier, Pondera, Teton, and Toole counties are in the Project study area.

Numerous oil and gas fields are located within the northern portion of the study area. Gathering lines and pipelines between 8 and 20 inches in diameter occur within or traverse the Project study area, including main lines, and transmission/trunk lines. Existing electric and magnetic fields (EMF) levels in the project vicinity are primarily dominated by EMF from common household appliances. Existing transmission and distribution lines also contribute to EMF levels.

S.6 Comparison of Alternatives and Impacts

No natural resources would experience a substantial impact from implementation of any action alternative. Potential impacts and cumulative impacts are similar for all three action alternatives.

S.6.1 No Action Alternative

The no action alternative would forgo the socioeconomic benefits of the proposed Project. Under this alternative there would be no additional employment from construction or operation of the transmission line, no increase in county or state tax revenue, and no additional impacts or compensation to farmers for use of their land. There would be no increased transmission capacity for new or existing power generators.

S.6.2 Alternatives 2, 3, and 4

All of the action alternatives would result in some loss of and interference with crop production. Alternative 3 would have the most impacts to crop production because it would include the most diagonal crossing of crop lands and because H-frame structures would be used on all cropland crossings. Alternative 3 would add to impacts associated with farming around structures because this alternative would closely parallel an existing 115-kV transmission line between Great Falls and Cut Bank. Alternative 4 would have less impact to crop production than the other action alternatives because it would include the least diagonal crossing of cropland and CRP land and would use monopoles on all cropland crossings. The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands, expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum clearance of 27.2 feet for the safe operation of farm equipment under the line. Construction activities under all of the action alternatives could result in increased soil erosion and release of sediment to streams, lakes, and wetlands, although best management practices would reduce or avoid potential impacts. The 500-foot wide analysis area associated with Alternative 4 would have the highest potential for soil erosion and sediment discharge to surface waters because it would cross the largest area of potentially unstable soils and the most streams. The analysis area associated with Alternative 2 would cross the smallest area of unstable soils and the fewest wetlands, while analysis area for Alternative 3 would cross the least number of streams but the largest area of wetlands and the largest number of lakes.

All action alternatives would produce some localized short-term emissions of particulate matter during construction. In addition, all action alternatives would emit very small amounts of greenhouse gases, principally from vehicle and equipment operations during construction. Construction-related greenhouse gas emissions were estimated using the Urban Emissions 2007 Model, and found to be negligible.

Under all action alternatives some bird mortality could result from collisions with transmission lines even after mitigating measures are applied; potential impacts would be somewhat less under Alternative 4 than the other alternatives because Alternative 4 would not be located as close to the Benton Lake National Wildlife Refuge. Under all action alternatives, portions of the transmission line would cross some potential habitat for special status species. Additional grouse lek surveys were conducted by MATL's consultant on April 30 (ground) and May 2 (aerial), 2008. Although some isolated sharp-tailed grouse were seen, no leks were observed. Observation of isolated grouse does not signify the presence of leks. Although no adverse effects to special status species are expected from any of the action alternatives, Alternative 2 would cross more potential habitat for special status species than Alternatives 3 and 4. In a letter dated September 16, 2008, the FWS has concurred with DOE's determination that the

proposed Project would not adversely affect any species listed as threatened or endangered under the Endangered Species Act.

Under all action alternatives, nearby residents and motorists using travel corridors would be exposed to views of a transmission line; Alternative 3 would expose the largest number of nearby residences and the longest length of travel corridors to near-field views within ½ mile of the proposed line. Alternative 4 would have the lowest overall visibility to nearby residences and travel corridors, but Alternatives 2 and 4 would have a similar number of residences within 1/4 mile.

Under any of the alternatives, no disproportionately high and adverse impacts would be expected to minority or low-income populations.

S.6.3 Agencies' Preferred Alternative

Beginning at the Great Falls Switchyard at Milepost 0, the agencies' preferred alternative includes a 27.3 mile segment of Alternative 4 because it better avoids cultivated and CRP land than Alternative 2. Compared to Alternative 2, this portion of Alternative 4 crosses 5.79 fewer miles of farmland, crosses 7.73 fewer miles of farmland diagonally, and has fewer nearby residences. Overall, this segment is 0.39 miles longer than the corresponding Alternative 2 segment and crosses 2.46 miles less state land. Much of this line segment parallels the WAPA-230 kV line that was sited during the 1980s to avoid cropland where possible.

From Milepost 27.3 to Milepost 31 the agencies' preferred alternative coincides with Alternative 2. From Milepost 31 the preferred alternative follows the Diamond Valley South Local Routing Option as far as milepost 39.2. While the Diamond Valley South option is 2 miles longer than the corresponding segment of Alternative 2, it better avoids diagonal crossings of farmland and better avoids houses. Compared to the Diamond Valley North Local Routing Option, it parallels fewer miles of field roads, better avoids a grain bin, and has two fewer crossings of NorthWestern Energy's 115-kV line.

At the crossing of the Teton River (Milepost 39.2) the agencies' preferred alternative incorporates the Teton River Local Routing Option because this crossing would remain higher above the river channel than Alternative 2, avoiding potential flood inundation, and largely remains along field edges north of the river.

From the Teton River the agencies' preferred alternative coincides with Alternative 2 as far as Milepost 56.2. Here, the preferred alternative uses the Southeast of Conrad Local Routing Option that locates the line on rangeland and field boundaries better than Alternative 2. From Milepost 59.2 to Milepost 69.3 the agencies' preferred alternative coincides with Alternative 2. Between Mileposts 69.3 and 72.2 the Northwest of Conrad

Local Routing Option was selected because it better avoids crossing farmland diagonally by using the range and pasture land available in the area.

From Milepost 72.2 to approximately Milepost 74 (the beginning of the Belgian Hill Local Routing Option) the preferred alternative coincides with Alternative 2. From Milepost 74 to Milepost 76.8 the Belgian Hill Local Routing Option was selected to avoid close proximity to several houses.

Between Milepost 48.1 and Milepost 75.5 Alternative 4 is not preferred. Compared to Alternative 2 as modified by Local Routing Options, this portion of Alternative 4 is 5.33 miles longer, resulting in additional environmental impacts and construction and maintenance costs. This portion of Alternative 4 also crosses 1.05 miles of additional farmland. Although this portion of Alternative 4 crosses 11.09 fewer miles of farmland diagonally than under Alternative 2 as modified by the Local Routing Options, MATL has committed to working with landowners to place interior structures along field strip boundaries where the landowner farms in strips that are narrower than a full quarter section. About half of this portion of Alternative 2 could be located on range or on field strip boundaries. Finally, the agencies have modified Alternative 2 to require the same use of monopoles wherever cropland and lands enrolled in CRP are crossed as required under Alternative 4.

From Milepost 76.8 to Milepost 79.5 the agencies' preferred alternative coincides with Alternative 2. From Milepost 79.5 to Milepost 81.2 the Bullhead Coulee South Local Routing Option was selected because, at the request of an affected landowner, it would allow construction of a wind turbine that would otherwise be precluded by Alternative 2.

From Milepost 81.2 to Milepost 85.5 the preferred alternative coincides with Alternative 2. From Milepost 85.5 to Milepost 87.2 the Bullhead Coulee North Local Routing Option was selected to reduce the amount of cropland crossed diagonally. From Milepost 87.2 to Milepost 100.5, the preferred alternative coincides with Alternative 2. The preferred alternative would cross BLM-owned land between Milepost 93.4 and Milepost 94.0. Beginning at Milepost 100.5 the preferred alternative uses the South of Cut Bank Local Routing Option because it would locate the line on field boundaries and better avoid a house without a large increase in line length. North of Milepost 103.1 the preferred alternative coincides with Alternatives 2 and 4 to join with Canada's approved route at the border crossing.

Although Alternative 3 is the shortest route, north of Cut Bank it is not preferred because it does not join with Canada's approved route. South of Cut Bank, Alternative 3 was developed to closely parallel an existing 115-kV line that was built in the 1960s prior to passage of MFSA. Alternative 3 is not the agencies' preferred alternative in that

area because it crosses more crop and irrigated land diagonally than Alternatives 2 and 4 and has little public acceptance or support.

S.6.4 Cumulative Impacts

CEQ regulations implementing the procedural provisions of NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.7). The regulations further explain that "cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

MEPA defines cumulative impacts as "the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type" (75-1-220(3), MCA). Related future actions may only be considered when these actions are under concurrent consideration by any agency through pre-impact statement studies, separate impact statement evaluations, or permit processing procedures (75-1-208(11), MCA). DEQ considers cumulative impacts when making the findings under MFSA (Administration Rules of Montana (ARM) 17.20.1604 (1)(b) and 1607(1)(a)(vii)).

Pursuant to ARM 17.4.627, whenever a state agency prepares a joint environmental impact statement that must comply with NEPA and MEPA, the joint document must be prepared in compliance with both statutes. The State agency may accede to and follow more stringent Federal requirements, such as additional content. NEPA requires reasonably foreseeable future actions to be included in the cumulative impacts analysis, not just those undergoing concurrent review.

Analysis of cumulative environmental impacts of a proposed Project and other actions helps to ensure that agency decisions consider the full range of consequences of the agencies' actions to the extent information is available.

At least 17 pipelines and 8 transmission lines transect the Project study area and vicinity. Other present and past activities in the vicinity of the proposed Project include farming (irrigated and non-irrigated), grazing, weed management, hunting and general recreation; growth of cities and towns, residential areas, and industrial and commercial areas; and development of Federal and state highways and county roads, railroads and railroad rights–of-way, communication facilities, military installations, conservation easements, airports, and national trails. Reasonably foreseeable future actions that could occur in the Project study area include the development of wind farms, rebuilding and relocating a WAPA transmission line, the Southern Montana Electric Highwood Generating Station 250 MW coal-fired power plant proposed to be built

outside Great Falls and the transmission line that would connect it to the local electric system, the proposed gas-fired Great Falls Energy Center 275 MW power plant, development of irrigation systems, and the potential for MATL to upgrade the capacity of the line from 300 MW to 400 MW in each direction.

DOE views wind development as a reasonably foreseeable future action. Various developers of wind farms that would be located near the MATL transmission line have purchased all the line capacity. However, wind farm developers that have purchased the capacity on the MATL line might not be the same power suppliers that use the line in the future. MATL has indicated that its transmission service rights contracts do not require the holder to supply any particular form of power generation. In light of the foregoing, DOE believes that MATL's proposed Project is separate from and has an existence and utility independent from the wind farms. While the wind farms would be the first users, it is reasonably foreseeable that other shippers can own the right to ship electricity over the proposed line. As a result, DOE does not view the currently subscribed wind farms as "connected actions" as defined in 40 C.F.R. § 1508.25(a) (1). Therefore, the impacts from potential wind farms are evaluated as cumulative impacts of the proposed Project, consistent with 40 C.F.R. § 1508.7.

Table S-2 summarizes impacts to natural resources, including cumulative impacts, considerations of environmental justice, and impacts to the existing transmission system (engineering and electric system reliability) among the alternatives analyzed.

S.6.5 Unavoidable Adverse Impacts

Unavoidable short-term adverse impacts from the proposed Project would be expected to occur to wetlands, land use (including transportation), noise, visuals, and native vegetation. Unavoidable long-term adverse impacts would occur to land use, birds, and visuals.

Construction activities could have short-term adverse impacts on land use, transportation, noise, and visuals, due to construction traffic and the establishment of staging areas, tensioning sites, access, and structure assembly areas. Construction activities could also have short-term adverse impacts on wetland resources from the alteration of surface water drainage patterns, disturbances and trampling of vegetation during construction, and from an increase in sedimentation to localized wetland areas from disturbances on adjacent properties. MATL's transmission line structures would not be placed in wetland areas, so no long-term impacts are expected for wetland resources. Native vegetation would be unavoidably disturbed, and weed infestations may occur for the short term during construction and before reclamation.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Land Use – General Impacts Comparative impacts of action alternatives depend on overall length of alignment, length on cropland, extent of diagonal crossing of cropland (diagonal crossings of cropland result in more interference with farming), and use of H frames vs. monopoles (use of monopoles reduces interference with farming)	There would be no additional impacts.	Facility construction traffic may conflict with movement of farm equipment on roads. Loss of and interference with crop production due to structures and roads, increased potential for weed introduction and spread, potential for equipment damage from hitting a structure, increased time to farm around poles, and some DGPS-guided equipment may be affected. Cropland crossings also increase the potential for crop duster accidents.	Same as Alt 2	Same as Alt 2	New projects would generally have short-term construction impacts and longer term changes to land use depending on the project. Wind development is generally compatible with a wide variety of land uses and generally would not preclude recreational, wildlife habitat conservation, military, livestock grazing, oil and gas leasing, dry land farming, or other activities that currently occur.
Land Use – Total Amount of Land Crossed		129.9 miles.	121.6 miles. Alt 3 disturbs the least.	139.6 miles. Alt 4 disturbs the most.	Impacts would depend on the type, location and design of development.
Land Use – Total Cropland Crossed		93.3 miles	95.3 miles. Alt 3 crosses the most.	88.9 miles. Alt 4 crosses the least.	
Land Use – Total Cropland Crossed Diagonally		54.9 miles	68.4 miles. Alt 3 crosses the most cropland diagonally.	28 miles. Alt 4 crosses the least cropland diagonally.	
Land Use – Total Ground Disturbance during Construction		330 acres	315 acres, Alt 3 disturbs least.	348 acres, Alt 4 disturbs most.	

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Land Use – Type of structure used on cropland		Monopoles used on about 56 miles of diagonal crossings of cropland; H-frames used on the remaining 74 miles	H-frames on the entire line, including cropland	Monopoles used for all 88.9 miles of cropland crossed	
Land Use –Total distance crossing Public Land, Special Management Areas and conservation easements		35.3 miles	24.7 miles. Alt 3 would cross the least	43.9 miles. Alt 4 would cross the most	
State Land (FWP owned) crossed, Great Falls Shooting Sports Complex		0.7 miles crossed	0.5 miles crossed	Alt 4 would avoid the Great Falls Shooting Sports Complex.	
State Land – Lewis and Clark Heritage Greenway Conservation Easement.		0.1 miles at the edge of the Lewis and Clark Heritage Greenway Conservation Easement.	Same as Alt 2.	Same as Alt 2.	
Montana State Trust Lands crossed		10.6 miles crossed	5.9 miles. Alt 3 would cross the least.	11.0 miles. Alt 4 would cross the most.	
Conservation easements crossed		USFWS – 0.0 miles CRP - 23.6 miles	USFWS - 3.8 miles CRP - 14.3 miles	USFWS - 1.7 miles. CRP – 30.8 miles	
BLM Land crossed		0.3 miles	0.1 miles	0.3 miles	

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Geology – Miles on Soil and Geologic Resources Prone to Mass Movement	There would be no additional impacts.	5 miles. Potential impacts would largely be mitigated by pole placement designed to span sensitive slopes and engineering design.	3 miles. Alt 3 has the least potential for mass movement that could result in pole instability. Potential impacts would largely be mitigated by pole placement designed to span sensitive slopes and engineering design.	20 miles. Alt 4 has the most potential for mass movement that could result in pole instability. Potential impacts would largely be mitigated by pole placement designed to span sensitive slopes and engineering design.	Impacts would depend on the type, location and design of development.
Soils – Miles on Unstable Soils (greater than 20 percent slope)	There would be no additional impacts.	16 miles. Soil erosion impacts would be mitigated by erosion control measures.	12 miles. Alt 3 has the least potential for soil erosion. Soil erosion impacts would be mitigated by erosion control measures.	24 miles. Alt 4 has the most potential for soil erosion. Soil erosion impacts would be mitigated by erosion control measures.	Additional development could cause increased soil erosion. Erosion control and storm water control would mitigate impacts.
Engineering- The structural reliability of electric transmission facilities in the area.	There would be no additional impacts.	No adverse impact to structural reliability is anticipated. All facilities are proposed to be constructed in compliance with accepted engineering standards.	Same as Alt 2	Same as Alt 2	None expected.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Hazardous Materials	There would be no additional impacts.	Wood structures would be treated with pentachlorophenol. Hazardous materials and wastes would be managed in accordance with State and Federal requirements	Same as Alt 2, except more wood poles would be used.	Same as Alt 2, except more wood poles would be used.	Construction, operation, and decommissioning future activities could require the use of some hazardous materials. Wastes would have to be managed as required by state and Federal law.
Electric and Magnetic Fields– Exposure Levels	There would be no additional impacts. Exposure levels in the project vicinity are primarily dominated by EMF from common household appliances.	Exposure levels outside the 500-foot-wide alignment would be less than 3.8 mG	Same as Alt 2.	Same as Alt 2.	If the line capacity increased to 400 MW in each direction, the electric field and the mean magnetic field would be higher, but electric field strength would remain below the state standard of 1 kV/m at the edge of the 500-foot-wide alignment in subdivision and residential areas, and the increase in the mean magnetic field would be slight

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Electric and Magnetic Fields– To ensure safety, pipelines near a transmission line would need to be grounded Length of 500-foot-wide Alignment Buffer Zone Within 100 feet of a Pipeline	There would be no additional impacts.	7.0 miles of the alignment would be within 100 ft of a pipeline 8" or larger.	9.8 miles of the alignment would be within 100 ft of a pipeline 8" or larger. Alt 3 has the longest distance where pipelines may need to be grounded.	5.7 miles of the alignment would be within 100 ft of a pipeline 8" or larger. Alt 4 has the shortest distance where pipelines may need to be grounded.	Impacts would depend on the type and location of development
Electric and Magnetic Fields– Radio, TV, or DGPS Interference	There would be no additional impacts.	None anticipated for nearby residents. May be some potential for interference with DGPS guidance systems. MATL would correct DGPS interference.	Same as Alt 2. MATL would correct DGPS interference.	Same as Alt 2. MATL would correct DGPS interference.	There is a potential for wind farm power lines to cause interference, but this impact would depend on the type, location and design of development and might be avoided by proper siting and design.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Water – General Impacts	There would be no additional impacts.	Minor short-term adverse impacts to surface water quality could occur by temporarily increasing sources of sediment from the time of construction to reclamation completion. This impact would be mitigated by avoiding disturbance of water and riparian areas or by implementing measures to reduce sediment transport. The potential for impact is related to the number of stream and lake crossings.	Same as Alt 2.	Same as Alt 2.	Future development activities combined with the proposal could increase sediment and other pollutants to water resources in the analysis area and potentially affect water quantity and quality. Construction would likely cause increased stormwater runoff and soil erosion. Because projects would be required to reduce the potential for sedimentation, require proper pesticide application, and comply with waste water discharge requirements, and to employ mitigation measures, these impacts are likely to be minor and short term.
Water – Potential Number of Perennial Stream or River Crossings	There would be no additional impacts.	10 crossings within the 500-foot wide alignment	6 crossings. Alt 3 poses the lowest potential for impact within the 500-foot wide alignment.	17 crossings. Alt 4 poses the greatest potential for impact within the 500-foot wide alignment.	Impacts would depend on the type and location of development.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Water – Potential Number of Lake Crossings	There would be no additional impacts.	4 crossings within the alignment.	6 crossings. Alt 3 poses the greatest potential for impact within the alignment.	2 crossings. Alt 4 poses the least potential for impact within the alignment.	Impacts would depend on the type and location of development.
Wetlands - General	There would be no additional impacts.	Other than one structure that would be located in Black Horse Lake, structures would not be placed in wetlands. Construction disturbance could result in a change in wetland plant community if wetland hydrology is altered. This impact would be mitigated if wetlands were undisturbed during construction and maintenance. Potential impact is related to the area of wetlands crossed.	Same as Alt 2.	Same as Alt 2, except that Alt 4 would not require a structure in Black Horse Lake.	Impacts would depend on the type, location and design of development.
Wetlands – Total Wetlands and Potential Wetlands Crossed	There would be no additional impacts.	71.9 acres crossed within the 500-foot-wide alignment, including 68.5 acres of marshland, 0.8 acre lake wetlands, and 2.6 acres of river wetlands. Alt 2 would cross the least total area of wetlands.	78.1 acres crossed within the 500-foot-wide alignment, including 73.8acres of marshland, 0.8 acre lake wetlands, and 3.5 acres of river wetlands. Alt 3 would cross the most total area of wetlands.	77.4 acres crossed within the 500-foot-wide alignment, including 75.1 acres of marshland and 2.4 acres of river wetlands.	Impacts would depend on the type and location of development.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Floodplains	There would be no additional impacts.	Line would cross floodplains at the Teton, Dry Fork Marias, and Marias river crossings, but no transmission line structures would be placed in 100-year floodplains. A Local Routing Option for the Teton River crossing would place a structure in a slightly higher location that was not inundated in the 1964 flood.	Same as Alt 2, except that the Local Routing Option is not applicable.	Same as Alt 2.	There are no reasonably foreseeable future actions that would impact floodplains
Vegetation – General	There would be no additional impacts.	Temporary loss of vegetation and increased potential for weed emergence and dispersion in disturbed areas until reclaimed. Potential impact is dependent on the size of the construction disturbance.	Same as Alt 2.	Same as Alt 2.	Future activities would likely disrupt vegetation in a similar manner. Revegetation would likely make impacts minor and short term.
Vegetation – Number of non-cropland acres to be disturbed for construction	There would be no additional impacts.	214 acres.	206 acres. Alt 3 would disturb the fewest acres.	240 acres. Alt 4 would disturb the most acres.	Impacts would depend on the type, location and design of development.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Vegetation – Native range, forest and riparian vegetation cover crossed	There would be no additional impacts.	33.0 miles of grassland / shrubland and riparian vegetation would be crossed	22.5 miles of grassland / shrubland, riparian vegetation, and forest would be crossed	47.8 miles of grassland / shrubland, riparian vegetation, and forest would be crossed	Impacts would depend on the type, location and design of development.
Wildlife - General	There would be no additional impacts.	Short-term impacts include loss of individuals during construction or direct disturbance of species during critical periods in their life-cycles. Long-term impacts include habitat alterations, electrocutions, and collisions. Collisions would be reduced by line marking.	Same as Alt 2.	Same as Alt 2.	Activities would result in disturbance and displacement of wildlife during construction, followed by some permanent loss of habitat. Bird and bat mortalities would be expected due to collisions with wind turbines.
Wildlife – Mule Deer Winter Range	There would be no additional impacts.	19.4 miles of habitat would be crossed. Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.	20.5 miles of habitat would be crossed. Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.	27.7 miles of habitat would be crossed. Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.	Impacts would depend on the type, location and design of development. Herd animals could be affected if developments are placed along migration paths or in fawning areas.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Wildlife – Birds	There would be no additional impacts.	Collisions with transmission line could result in bird loss. The potential for bird collisions would be greatest in those portions of the line located near wetlands and the Benton Lake National Wildlife Refuge.	Similar to Alt 2.	Similar to Alt 2, but line would be farther from the Benton Lake National Wildlife Refuge	Additional development could reduce habitat. Wind farms potentially associated with the proposed line could cause estimated 2 to 3 mortalities per year of raptors (such as eagles and hawks) and 720 to 960 mortalities per year other birds from collisions with turbines. From other reasonably foreseeable wind farms, that could be built but are not directly associated with the MATL project, bird mortalities could range from 454 to 603 per year.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Wildlife – Bats	There would be no additional impacts.	There would be no additional impacts.	There would be no additional impacts.	There would be no additional impacts.	Wind farms potentially associated with the MATL project could cause an estimated 28 to 7,142 bat mortalities per year from encounters with turbines. From other reasonably foreseeable wind farms that could be built but not potentially associated with the MATL project, bat mortalities could range from 18 to 4,550 per year.
Fish – Expected impacts to habitat due to changes in water quality	There would be no additional impacts.	Fish habitat may be slightly affected by construction activity that contributes sediment to streams. Potential for impact is related to potential for impact to rivers and streams – 10 perennial river or stream crossings in the 500-foot wide alignment but no in-stream activities anticipated.	Similar to Alt 2, – 6 perennial river or stream crossings in the 500-foot wide alignment, but no in-stream activities anticipated. Alt 3 has the least potential to slightly affect fish habitat.	Similar to Alt 2, – 17 perennial river or stream crossings in the 500-foot wide alignment, but no in-stream activities anticipated. Alt 4 has the highest potential to slightly affect fish habitat.	Cumulative impacts that adversely affect water resources could adversely affect fish and fish habitats.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Special Status Species – Vegetation	There would be no additional impacts.	All known occurrences of special status plant species (all of which are riparian or wetland plants) are located outside the study area. Potential for impact is based on amount of riparian area crossed. Alt 2 crosses least amount of riparian habitat, 1.4 miles.	Alt 3 crosses 1.7 miles of riparian habitat.	Alt 4 crosses most riparian habitat, 1.9 miles.	Construction activities could affect threatened, endangered, and sensitive species in the same manner that vegetation could be affected.
Special Status Species – Wildlife Habitat crossed. Although no black-footed ferrets are found in the area, prairie dog towns if crossed by the proposed alignments may be habitat for this federally listed endangered species. Alternatives also would cross actual or potential habitat for 5 bird species listed as sensitive species by the Montana Natural Heritage Program (MNHP) and/or BLM and 3 fish species listed as sensitive by MNHP.	There would be no additional impacts.	19.9 miles. Alt 2 crosses the most habitats for one or more special status species. FWS concurred with the biological assessment's conclusion that there would be no effect on black-footed ferrets or their critical habitat.	11.3 miles. Alt 3 crosses the least habitat for special status species.	11.7 miles.	Construction activities could affect threatened, endangered, and sensitive species in the same manner that wildlife and aquatic resources could be affected in general.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Air Quality – General Air quality in the analysis area is designated as attainment for all criteria pollutants.	There would be no additional impacts.	Some localized short-term emissions of particulate matter would occur during construction.	Same as Alt 2.	Same as Alt 2.	Construction of new facilities such as wind farms and other electrical generating facilities would generally have short-term impacts similar to construction impacts of the transmission line, but because of differences in timing, few impacts would likely be cumulative with air quality impacts of the proposed action. Operation of future facilities could increase other emissions, but few impacts would be cumulative with air quality impacts of the proposed action.
Air Quality – Greenhouse Gases	There would be no additional impacts.	Impacts would be negligible.	Same as Alt 2.	Same as Alt 2	Construction and operation of new facilities could either help reduce or contribute to emissions of greenhouse gases; this depends on the type, size, and quantity of any generation built.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Noise – General	There would be no additional impacts.	Short-term, localized construction noise. Operation of the transmission line would not add substantially to existing background noise levels.	Same as Alt 2.	Short-term, localized construction noise. In one subdivided area (0.16 mile), noise from rain or wind on the transmission line would be below the Bonneville Power Administration and U.S. Department of Housing and Urban Development guidelines, but may exceed the DEQ standard.	Construction of new facilities such as wind farms and other electrical generating facilities would generally have short-term impacts that would vary in magnitude and duration based on the size and complexity of the project. Operation of wind turbines would result in noise; noise levels would depend on the observer's location.
Social Resources	No change to existing conditions and trends.	Increased short-term construction and long-term maintenance employment opportunities. Potential for impact to local schools, community structure and social services from influx of workers is small.	Same as Alt 2.	Same as Alt 2.	Any large development or numerous simultaneous small developments could strain local services. Smaller projects would have impacts similar to Alt 2. There could be a perception that wind turbines change the local character of a given area. There could be disagreement over wind turbine location.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Economics – Short term	There would be no change in employment opportunities.	There would be short-term construction-related employment opportunities.	Same as Alt 2.	Same as Alt 2. MATL has stated it would take longer to build and be more costly.	Depending on the size and number of activities and location, impacts could vary from very minor to large.
Economics – Counties	There would be no opportunities for long-term operation and maintenance employment and no increased county tax revenues.	There would be opportunities for long-term operation and maintenance employment. County tax revenues would increase.	Same as Alt 2. (Except that farmers would have higher additional costs from having transmission structures on their land.)	Same as Alt 2. (Except that costs to farmers from having transmission structures on their land would be less.)	Depending on the size and number of activities and location, impacts could vary from very minor to large. Such impacts would include jobs, income, taxes and effects on social services.
Economics – State	There would be no increased opportunity for power import or export, no increased competition that could reduce costs to ratepayers, less opportunity for wind or other power generation facility start up and no increased state tax revenues.	Opportunities to import or export electric power would increase. Increased competition may reduce cost to ratepayers. Creation of opportunities to start up wind generation facilities. State tax revenue would increase.	Same as Alt 2.	Same as Alt 2. MATL has stated it would take longer to build and be more costly.	Depending on the size and number of activities, impacts could vary from very minor to large. Such impacts would include jobs, income, and taxes, as well as changes in the local electric system.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Economics – Landowners and Farmers	No change in existing conditions and trends.	Farmers would incur additional costs estimated at $ 57,000 to $213,000 per year. MATL would compensate landowners with one time easement payments, annual per-pole payments, and annual flat fees for the additional costs of farming caused by the transmission line. Some agricultural landowners would also receive a state property tax exemption for property within 660 feet of the centerline. Long-term impacts on land values are likely to be small.	Additional cost to farmers is estimated to be $ 75,000 to $ 271,000 per year. Compensation would be provided as described for Alt 2. Alt 3 would have the highest cost to farmers before compensation. Some agricultural landowners would also receive a state property tax exemption for property within 660 feet of the centerline. Long-term impacts on land values are likely to be small.	Additional cost to farmers is estimated to be $ 41,000 to $ 146,000 per year. Compensation would be provided as described for Alt 2. Alt 4 would have the lowest cost to farmers before compensation. Some agricultural landowners would also receive a state property tax exemption for property within 660 feet of the centerline. Long-term impacts on land values are likely to be small.	Depending on the size and number of activities and location, impacts could vary from very minor to large.
Paleontological Resources – The Two Medicine Formation is the geologic unit with a high probability of containing fossils.	There would be no additional impacts.	Construction activity could disturb fossil sites. Since most of the Two Medicine Formation is covered by 1 to 15 feet of material, little or no impact is anticipated.	Similar to Alt 2.	Similar to Alt 2.	Future activities could uncover or destroy currently unknown paleontological resources.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Cultural Resources	There would be no new impacts to cultural resources or Traditional Cultural Properties.	Construction could disturb archaeological or historical resources. The 500-foot wide analysis area would encompass 8 known sites eligible for the NRHP and 33 sites of undetermined eligibility. Traditional Cultural Properties or potential locations identified by knowledgeable Tribal members would be avoided.	Similar to Alt 2. Alt 3 would encompass 7 sites eligible for the NRHP and 9 sites of undetermined eligibility.	Similar to Alt 2. Alt 4 would encompass 4 sites eligible for the NRHP and 19 sites of undetermined eligibility.	Future activities could uncover or destroy currently unknown cultural resources.
Visuals – General	There would be no additional impacts.	Decline in aesthetic quality of viewsheds, increase in visual contrast or landscape change due to contrast with natural landscape. Potential impact is primarily dependent on proximity of viewers and residences to the transmission line.	Same as Alt 2.	Same as Alt 2.	Impacts would depend on the type and location of development. Future activities would increase the developed character of the landscape for the long term. In particular, wind farms would be highly visible because of the introduction of turbines into rural landscapes with few other comparable structures.
Visuals – Residences within ¼ mile	No residences would be exposed to the view of a new transmission line.	20 residences.	25 residences. Alt 3 would be visible from the highest number of residences within this distance.	20 residences.	

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Visuals – Number of Residences ¼ - ½ mile	No residences would be exposed to the view of a new transmission line.	51 residences.	65 residences. Alt 3 would be visible from the highest number of residences within this distance.	45 residences. Alt 4 would be visible from the lowest number of residences within this distance.	
Visuals – Residences within ½ to 1 mile	No residences would be exposed to the view of a new transmission line.	111 residences.	139 residences. Alt 3 would be visible from the highest number of residences within this distance.	111 residences.	
Visuals – Within ½ mile of a travel corridor (I-15 and US Highways 2 and 87)	No travel corridors would be exposed to the view of a new transmission line.	6.1 miles.	7.6 miles. Alt 3 would have the longest near-field visibility from travel corridors.	5.0 miles. Alt 4 would have the shortest near-field visibility from travel corridors.	
Environmental Justice	No change in existing conditions.	No disproportionately high and adverse impacts to minority or low-income populations were identified.	Same as Alt 2	Same as Alt 2	Future activities could have an impact on environmental justice depending on location and size of the project.
Electric System Reliability – The ability of the electric system to operate within established criteria under normal and emergency conditions.	No change.	No adverse effect on electric system reliability.	Same as Alt 2	Same as Alt 2	Depending on the project, there might be changes in the local electric system.

TABLE S-2 (Cont.)
SUMMARY OF IMPACTS BY RESOURCE AREA

Notes:

Alt	Alternative
BLM	Bureau of Land Management
CRP	Conservation Reserve Program
DGPS	Differential Global Positioning System
EMF	Electric and Magnetic Field
FWP	Montana Dept. of Fish, Wildlife and Parks
kV / m	Kilovolt per meter
mG	Milligauss
MW	Megawatt
NA	Not applicable
NRHP	National Register of Historic Places
ROW	Right of Way
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service

Long-term impacts to land use include loss of production of farmland, increased risk to aircraft, and interference with farming activities. An increase in avian mortality would be unavoidable and long term. Visual resources would experience unavoidable adverse impacts to the aesthetic quality of the landscape by transmission lines.

S.6.6 Irreversible or Irretrievable Commitments of Resources

If concrete footings are used, the concrete would be left in place and irreversibly committed. Fuel used during construction and decommissioning would be irreversibly committed. If wood structures are used, it is probable that these poles would not be available for future transmission projects and would be irreversibly committed. Energy lost during transmission line operation (line losses) would be irretrievably committed.

Paleontological and cultural resources, including traditional cultural properties, are nonrenewable resources. The MATL project would increase access to the areas where these resources may be located. This increased access could lead to intentional damage from looting and vandalism, including unauthorized relic collecting, theft, and defacement, and result in the loss of information and destruction of the resource. Any impacts to these resources would constitute an irreversible commitment of resources.

S.6.7 Short-Term Use and Long-Term Productivity

Short-term uses are characterized by existing land use as affected by the proposed Project and all activities that such land use facilitates. Long-term productivity involves sustaining the interrelationships of each resource in a condition sufficient to support ecological, social, and economic health.

All action alternatives would manage resources within requisite regulatory standards for air quality, water quality, cultural resource preservation, and wildlife management. Impacts from any of the action alternatives to visual resources and farming activities would not adversely affect long-term productivity of the resource. Overall impacts to socioeconomic resources would be beneficial for all action alternatives. Because Alternative 4 contains additional environmental mitigation measures for avoiding adverse impacts to farming, riparian areas, visual resources, and surface water, this alternative presents the most protective alternative for the maintenance and enhancement of long-term productivity of the environment while benefiting socioeconomic resources.

S.7 Regulatory Restrictions Analysis

MEPA requires the disclosure of any regulatory impacts on the private property rights of an applicant. These impacts are usually estimated in terms of economic cost. Alternatives and mitigation measures are designed to further protect environmental, cultural, visual, and social resources, although they add to the cost of the Project. Alternatives and mitigation measures that are required by Federal or state laws and regulations to meet minimum environmental standards do not need to be evaluated for extra costs to the project proponent. If approved, DEQ would require that the project meet standards for noise and electric field strength in residential and subdivided areas, unless affected landowners waive these requirements. The project would be required to meet minimum standards set forth in the National Electrical Safety Code and Federal Aviation Administration requirements for marking the line.

Project costs and costs of mitigation are presented in **Table S-3**. Monetary values of impacts, except for estimated costs to farmers, cannot reasonably be quantified. Many potential adverse environmental impacts are minimized through measures proposed by the applicant and the application of environmental specifications. A plan for monitoring the facility is described in environmental specifications for the project, as required by administrative rules implementing MFSA and further detailed in ARM 17.20.1901.

TABLE S-3
PROJECT COSTS

	Alternative 2	Alternative 3	Alternative 4
Length (miles)	129.9 (56 miles monopoles, 74 miles H-frames)	121.6 (all H-frames)	139.9 (88.9 miles monopoles, 51 miles H-frames)
Estimated Construction cost [a]	$44,036,832	$39,287,987	$48,430,930
Estimated Total cost with mitigating measures	$44,769,832	$39,931,987	$49,296,930

[a] H-frame structures $323,092 per mile; monopole structures $359,429 per mile (MATL 1/26/07 Canadian costs were updated using the August 8, 2008, exchange rate).

Bond requirements and other mitigation measures that might be imposed by DEQ would add from 1.1 to 1.7 percent to the basic construction cost of Alternative 2. Alternative 3 would be less expensive to build than Alternative 2. Alternative 4, including bond, would cost 11.9 percent more than the basic construction cost of Alternative 2 or 10.7 percent more than the cost of Alternative 2 including bond.

Mitigation measures whose costs can be estimated are precision mapping of unstable soils, archaeologist observation of construction, wetlands delineation, bonding for reclamation and revegetation, and the use of conductors with dulled, non-reflective surfaces. Monopole structures in addition to the 56 miles that MATL has committed to use for diagonal crossings of cultivated cropland might also be required in some areas.

The costs of other measures, such as damage payments are not readily quantifiable but would add to the total cost of the Project. MATL has already negotiated easements or options across portions of the proposed Project alignment. The cost to MATL of acquiring these easements is unknown. If MATL has already paid for ROW access to lands that may be crossed by the Alternative 2 alignment, and that alignment is not permitted, MATL may lose the money already spent. Alternative 2 with additional mitigation measures and the use of monopoles on selected portions of the transmission line would impose the least regulation on MATL's private property rights while reducing environmental impacts.

S.8 Intentional Destructive Acts

Intentional destructive acts, such as sabotage, terrorism, vandalism, and theft, sometimes occur at electric utility facilities. These acts include shooting at insulators, power lines, transmission towers, or substation equipment; vandalism; and theft of equipment, supplies, tools, or materials. Vandalism and thefts are most common. However, these acts do not generally cause a disruption of electric service to the area.

In general, it is possible that destroying support towers or other equipment may result in disruption of electrical service depending on the size (voltage and capacity) of the transmission line, the particular act, and the configuration of the local transmission system. However, given the characteristics of the proposed MATL transmission line project and its rural location, it is unlikely that intentional destructive acts would occur. Furthermore, even if such an act did occur, it is not likely to have a major impact on the regional transmission system or local electrical service because the electric system is designed to withstand the instantaneous loss (regardless of the cause) of key elements and still provide uninterrupted service to customers.

DOE/EIS-0399

Final
Environmental Impact Statement

for the
Montana Alberta Tie Ltd. (MATL)
230-kV Transmission Line

VOLUME 1

September 2008

United States
Department of Energy

State of Montana
Department of Environmental Quality

COVER SHEET

Responsible Agencies: U.S. Department of Energy (DOE) and Montana Department of Environmental Quality (DEQ) are co-lead agencies; the Bureau of Land Management (BLM), U.S. Department of the Interior, is a cooperating agency.

Title: Final Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (DOE/EIS-0399)

Location: Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties, Montana.

Contacts: *For further information about this Final EIS, contact:* Ellen Russell, Project Manager, Office of Electricity Delivery and Energy Reliability, U.S. Department of Energy, 1000 Independence Ave., S.W., Washington, D.C. 20585, (202) 586-9624, or Ellen.Russell@hq.doe.gov. *For general information on DOE's National Environmental Policy Act (NEPA) process, contact:* Carol Borgstrom, Director, Office of NEPA Policy and Compliance, at the above address, (202) 586-4600, or leave a message at (800) 472-2756.

For general information on the State of Montana Major Facility Siting Act process, contact: Tom Ring, Environmental Science Specialist, Montana Department of Environmental Quality (DEQ), PO Box 200901, Helena, MT 59620-0901, or (406) 444-6785. *For general information on the State of Montana Environmental Policy Act process, contact:* Greg Hallsten, Environmental Science Specialist, at the above address, or (406) 444-3276.

Abstract: MATL proposes to construct and operate a merchant 230-kV transmission line between Great Falls, Montana, and Lethbridge, Alberta, that would cross the U.S.-Canada border north of Cut Bank, Montana. The transmission line would transmit 300 megawatts (MW) of electric power south and 300 MW north. In order to build and operate the line, MATL must first obtain a Presidential permit (Permit) from DOE to cross the U.S.-Canada border, a Certificate of Compliance (Certificate) from the Montana DEQ to construct the line in Montana, and a right-of-way grant from the BLM to cross any BLM-administered lands.

In March 2007 DOE and DEQ published a joint document (referred to herein as the March 2007 document) that was a Draft Environmental Assessment for DOE and a Draft Environmental Impact Statement (EIS) for DEQ. Based largely on the public comments received on the March 2007 document, DOE determined that an EIS was the appropriate level of review. For the same reasons, DEQ decided to prepare a supplement to its Draft EIS. In February 2008 the agencies published a document (referred to herein as the Draft EIS) that was a Federal Draft EIS and a State of Montana Supplemental Draft EIS. A 45-day comment period began with publication of a Notice of Availability in the *Federal Register* on February 15, 2008 (73 FR 8869), and ended on March 31, 2008, during which the agencies held three public hearings to obtain comments. The Final EIS contains the agencies' responses to comments and revisions to the Draft EIS. Text changes to this Final EIS from the Draft EIS are identified by underlining for corrected or added text and a mark along the left margin.

The EIS analyzes the "No Action" alternative and three alternative transmission line alignments with 11 Local Routing Options and other minor variations to the alternative alignments. The agencies will use the EIS to ensure that they have the environmental information needed to render informed decisions.

An accompanying compact disc contains electronic copies of the Final EIS, including the appendices, which are not included in the paper copy, along with Volume 2 from the Draft EIS, which provides responses to comments received on the March 2007 document. The EIS will be available on DOE's NEPA website at www.gc.energy.gov/NEPA/DOE_NEPA_documents.htm and at DEQ's website at http://deq.mt.gov/MFS/MATL.asp.

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Summary

S.1 Introduction

This is a State of Montana Final Environmental Impact Statement (EIS) and the U.S. Department of Energy (DOE) Federal Final EIS (referred to herein as the EIS for both state and Federal purposes) prepared for the United States portion of the proposed Montana Alberta Tie Ltd. (MATL) 230-kilovolt (kV) transmission line.

The EIS consists of two volumes. Volume 1 consists of a Summary, a description of the proposal and alternatives, analysis of their impacts, and appendices. (Because of their length, the appendices are not printed as part of Volume 1. They are, however, included in full in the accompanying compact disk.) Volume 2 consists of the comments received on the Draft EIS (published in February 2008) and the agencies' responses to the comments.

MATL has proposed to construct an international 230-kV alternating current merchant (private) transmission line that would originate at the existing NorthWestern Energy (NWE) 230-kV Switchyard at Great Falls, Montana, and extend north to a new substation to be constructed northeast of Lethbridge, Alberta, crossing the U.S.-Canada international border north of Cut Bank, Montana (proposed Project). Approximately 130 miles of the 203-mile transmission line are proposed to be constructed in the U.S. The line would be constructed and owned by MATL, a private Canadian corporation owned by Tonbridge Power. The proposed line would be part of the Western Interconnection[1] (western grid), and a phase shifting transformer would be installed at the substation near Lethbridge to control the direction of power flows on the line. In order to develop the proposed Project, MATL must obtain Federal and State authorizations.

MATL submitted an application for a Certificate of Compliance (Certificate) to the Montana Department of Environmental Quality (DEQ) under the Montana Major Facility Siting Act (MFSA), (75-20-101, et seq., Montana Code Annotated [MCA]). MATL also applied to DOE for a Presidential permit (permit) to construct, operate, maintain, and connect facilities for the transmission of electric energy at the U.S.-Canada international border and to the U.S. Bureau of Land Management (BLM) for a right-of-way (ROW) grant for Transportation and Utility Systems and Facilities on Federal Land. MATL must receive all three authorizations before it can implement the proposed Project. In response to the application for a certificate, DEQ must prepare a

1 While the power system in North America is commonly referred to as "the grid," there are actually three distinct power grids or "interconnections." The Eastern Interconnection includes the eastern two-thirds of the continental United States and Canada from Saskatchewan east to the Maritime Provinces. The Western Interconnection includes the western third of the continental United States (excluding Alaska), the Canadian provinces of Alberta and British Columbia, and a portion of Baja California Norte, Mexico. The third interconnection comprises most of the State of Texas. The three interconnections are electrically independent from each other except for a few small direct current transmission lines that link them.

report, conduct an environmental review, and issue an approval before construction may begin. These are required by the Montana Environmental Policy Act (MEPA) and MFSA. The DOE and BLM actions also require an environmental review conducted in accordance with the National Environmental Policy Act (NEPA).

S.2 Purpose and Benefit to the State of Montana

The proposed MATL transmission line would connect the Montana electric system with the Alberta electric system, provide access to potential markets for new and existing power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources. Expected benefits of the proposed Project are summarized below.

S.2.1 Benefits to Electricity Generators and Consumers in Montana

The proposed transmission line would have the capacity to carry up to 300 megawatts (MW) of electric power north and 300 MW south for a total capacity of up to 600 MW. However, due to constraints on the current system where the MATL line would tie in at Great Falls, the full capacity of 300 MW to the south may not be realized unless additional upgrades are made to the transmission system south of Great Falls. The added transmission capacity from the proposed MATL transmission line could support a modest increase in new power generation in Montana. While new generation in excess of 600 MW would need more transmission capacity than MATL's proposed Project could provide, the construction and operation of the proposed Project would provide opportunities for development of smaller energy generation projects of up to 600 MW, such as wind energy, in Montana. Currently, MATL has sold all the capacity of the line to prospective developers of wind farms. The development of wind farms along the MATL line is considered to be a reasonably foreseeable future action under Federal law and is analyzed under the cumulative impacts.

Additional expected benefits to Montana generators and consumers include: additional connection with markets that demand energy; additional wholesale electricity purchasing options for Montana utilities, which could result in lower electricity rates due to an increase in supplier competition; and increased opportunities for western grid optimization during high Montana export and low Alberta-to-British Columbia export scenarios.

S.2.2 Benefits to Existing Transmission Systems

A modified transmission system, including a tie line between Montana and Alberta, may also result in benefits to transmission system operators whose service areas include Montana and to utilities that provide transmission service within the state. A modified transmission system could provide more options for power routing within Montana, increase energy transactions between Montana and Alberta, and allow for easier balancing of energy surpluses and shortages within and between balancing authority areas. Because tie lines are able to connect with adjacent electric systems, different generation resources can combine to provide a level of reliability that one jurisdiction could not otherwise afford to provide if that jurisdiction had to cover the same resources independently. The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NorthWestern Energy (NWE), to obtain regulating reserves for its transmission system control area. Regulating reserves are likely to become increasingly important as more wind energy is built in NWE's jurisdiction.

S.2.3 Benefits as Stated by the Applicant

The MATL transmission line would be a merchant line, the primary purpose of which is to financially benefit the owner/operators. The MATL application for certification described the following benefits to MATL, the U.S., and Canada:

> *The Project would be the United States' first power transmission interconnection with Alberta and is expected to facilitate development of additional sources of generation (e.g., windfarms both in northern Montana, and southern Alberta), and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the Project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.*

In addition, MATL asserts that system stability studies conducted under the direction of the Western Electricity Coordinating Council Peer Review Group indicate that the proposed Project would not adversely affect transmission system stability (Tonbridge Power, Inc. 2007). A Transmission Line Interconnection Agreement between MATL LLC and NorthWestern Corporation (parent company of NWE) was executed on December 20, 2007 and became effective on January 31, 2008.

The proposed Project is needed to provide transmission capacity between Lethbridge and Great Falls. There is currently no direct high voltage power transmission connection between Alberta and Montana. Although additional capacity is not needed to provide power to Montana customers, additional capacity would allow increased

electricity trading between Alberta and Montana and could facilitate development of wind farms or other generation facilities in the vicinity.

Because Montana makes more electricity than it consumes, to be economically viable, any new generation resources in Montana must offer competitive pricing and have adequate transmission access to compete in out-of-state markets or replace an existing supplier choosing to take higher profits by selling out of state. Either way, additional transmission capacity is not needed to serve Montana customers, but it is essential for the viability of new generation enterprises (DEQ 2004).

S.3 General DOE, MFSA, NEPA/MEPA, and BLM Requirements

MEPA requires that decision makers consider the effects of their actions on the human environment. MFSA requires that need, environmental effects, costs, electric reliability and other factors are considered before making a decision. State agencies must inform the public of the decision making process and seek participation in the process. Similarly, NEPA requires that Federal decision makers be fully informed of the potential environmental consequences of their agency's proposed actions, provide an opportunity for public participation in the environmental review process, and document the reasons for their decisions. The information contained in this EIS will provide a basis for DEQ to make findings required for its certification decision and for DOE to determine whether it is in the public interest to grant a Presidential permit, and BLM to grant a ROW. DEQ, DOE, and the BLM will use this information to decide which alternative(s) could be implemented and which mitigation measures, if any, would be appropriate for inclusion as a condition of the certificate, permit, or ROW grant. DEQ, DOE, and BLM will document their decisions separately.

S.3.1 Purpose and Need for DOE Action

DOE has the responsibility for implementing Executive Order (E.O.) 10485 (September 9, 1953), as amended by E.O. 12038 (February 7, 1978), which requires the issuance of a Presidential permit for the construction, operation, maintenance, and connection of electric transmission facilities at the United States international border. DOE may issue the permit if it determines the project to be consistent with the public interest and after obtaining favorable recommendations from the U.S. Departments of State and Defense. In determining if a proposed Project is consistent with the public interest, DOE considers:

1. Potential environmental impacts in accordance with NEPA and Council on Environmental Quality (CEQ) and DOE implementing regulations at 40 Code of Federal Regulations (CFR) Parts 1500-1508 and 10 CFR Part 1021, respectively;

2. The proposed project's impact on electric reliability, that is whether the proposed Project would adversely affect the operation of the U.S. electric power supply system under normal and contingency conditions; and

3. Any other factors that DOE may consider relevant to the public interest.

DOE will consider this EIS in determining whether to grant a Presidential permit to MATL. DOE's action responds to MATL's request for a Presidential permit.

S.3.2 DEQ MFSA Requirements

Under MFSA, DEQ requires a certificate of compliance for construction of electric transmission lines defined as facilities. The purposes of MFSA are to: (1) ensure the protection of the state's environmental resources; (2) ensure the consideration of socioeconomic impacts; (3) provide citizens with an opportunity to participate in facility siting decisions; and (4) establish a coordinated and efficient method for the processing of all authorizations required for regulated facilities. DEQ must find that the selected alternative meets the set of criteria listed in 75-20-301, MCA, and applicable administrative rules to be eligible for transmission line certification.

DEQ would approve a transmission line facility as proposed or as modified or an alternative to the proposed facility if it finds and determines:

- the need for the facility;
- the nature of probable environmental impacts;
- that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives;
- what part, if any, would be located underground;
- the facility is consistent with regional plans for expansion of the appropriate grid of the utility systems serving the state and interconnected utility systems;
- the facility would serve the interests of utility system economy and reliability;
- that the location of the proposed facility conforms to applicable state and local laws;
- that the facility would serve the public interest, convenience, and necessity;
- that DEQ has issued all necessary decisions, opinions, orders, certifications, and permits; and,

- that the use of public lands for location of the facility was evaluated, and public lands were selected whenever their use is as economically practicable as the use of private lands (75-20-301[1], MCA).

S.3.3 BLM Requirements

BLM has responsibility to issue ROW grants for electric transmission lines on BLM-administered lands in accordance with the Federal Land Policy and Management Act of 1976 and regulations at 43 CFR Part 2800.

A ROW grant provides for the construction, operation, maintenance, and termination of a specific project for a specific period of time. Before issuing a ROW grant, BLM will:

- complete a NEPA analysis or approve a previously completed NEPA analysis;
- determine whether the project complies with Federal and State laws and land use plans;
- consult with other governmental entities;
- hold public meetings if sufficient public interest exists; and
- take any other action necessary to fully evaluate and decide whether to approve or deny the application.

It is BLM's policy to encourage proponents to locate projects within designated or existing ROW corridors to the maximum extent feasible. However, no designated or existing ROW corridor is present on approximately 0.3 mile of BLM land that would be crossed.

S.3.4 NEPA/MEPA Process

Initially, the DOE considered an environmental assessment (EA) to be the appropriate level of review under NEPA for the proposed Project while DEQ considered the appropriate level of review for MEPA to be an EIS analysis. DOE issued a "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Montana Alberta Tie, Ltd." in the *Federal Register* on November 18, 2005 (70 FR 69962). In addition, DOE mailed a copy of the notice to each owner of land within and adjacent to the MATL-proposed corridor. Names were obtained from Montana land ownership records.

DEQ and DOE hosted public meetings in December 2005 and DEQ hosted a public meeting in June 2006. At these meetings the public was asked to identify issues and concerns to be addressed during the review. During each meeting, MATL and DEQ representatives presented briefings. Maps and other information were available for review, and representatives from each agency were available to discuss the project, answer questions, and receive public comments.

Meeting dates and locations were:

- Conrad on December 5, 2005
- Great Falls on December 6, 2005
- Cut Bank on December 7, 2005
- Cut Bank on June 26, 2006

In March 2007, the agencies published a document titled *Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line* that served as a Draft EIS for DEQ and an EA for DOE (March 2007 document). In order to receive public comments, DEQ and DOE hosted three public hearings after the March 2007 document was issued:

- Conrad on March 27, 2007
- Cut Bank on March 28, 2007
- Great Falls on March 29, 2007

Based on comments received on the March 2007 document relating to land use and potential effects on farming, DOE determined an EIS to be the appropriate NEPA compliance document. Accordingly, on June 7, 2007, DOE published a Notice of Intent to Prepare an EIS and to Conduct Scoping in the *Federal Register* (72 FR 31569) and invited additional comments for a 30-day period. Throughout the scoping processes, stakeholders submitted comments via letters, phone calls, and emails.

DEQ decided to prepare a Supplemental Draft EIS to address issues raised in comments on the March 2007 document. Comments received on that document indicated additional analysis was needed to describe the costs of farming around the proposed structures and to compare these costs to the additional costs associated with alternative locations for the line. In addition, substantial changes to state tax law were enacted during Montana's May 2007 special legislative session which changed the analysis of socioeconomic impacts.

Under MFSA, the Montana Department of Transportation (MDT); Montana Department of Natural Resources and Conservation (DNRC); Montana Fish, Wildlife and Parks (FWP); Montana Department of Revenue; and the Montana Public Service Commission are required to report to DEQ information related to the impact of the proposed project on each agency's area of expertise. The report may include opinions on the advisability of granting, denying, or modifying the certificate (75-20-216[6], MCA). Other agencies having interest or responsibility in the project approval process include the Montana State Historic Preservation Office (SHPO), U.S. Department of Agriculture Farm Service Agency, and the U.S. Fish and Wildlife Service (FWS).

Based on comments received from the participating agencies and the public, the following issues and concerns were identified:

(1) impacts on farming, ranching, and other land uses such as difficulties and hindrances of farming and spraying around the transmission line structures, potential for interference with Differential Global Positioning System (DGPS)-guided farm equipment, potential for noxious weed growth, interference with existing and future pivot or mechanical irrigation systems, and additional fencing needs;

(2) impacts on protected, threatened, endangered, special status, and sensitive animal and plant species and their critical habitats, such as increased perch opportunities for birds of prey that could result in increased predation on species such as the swift fox and sharp-tailed grouse, disturbance of rare plant species, interference with migratory and feeding flight paths of waterfowl, avian mortality from bird strikes, and potential impacts on critical wildlife habitats;

(3) impacts on floodplains and wetlands, such as size and degree of impacts on known and delineated floodplains, wetlands, waters of the U.S., and other special aquatic sites;

(4) impacts on cultural and historic resources including potential disturbance of Native American settlements and religious sites;

(5) impacts on human health and safety related to minimum ground clearance of the line, corona effects (including audible noise and radio and television interference), and other electromagnetic field effects;

(6) impacts on air, soil, and water, such as soil erosion and resultant sedimentation to surface water, mass movement of unstable geologic materials and soils, reclamation constraints, and impacts on existing air quality;

(7) visual impacts to homes, historic homesteads, and tribal landscapes;

(8) socioeconomic impacts to taxes and disturbance of residential property in Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties from the construction and operation of the line; and

(9) impacts from development of wind or other generation projects that could occur as reasonably foreseeable future actions.

On September 6, 2007, DOE invited the BLM to participate as a cooperating agency in the preparation of the EIS. DOE requested BLM's involvement to address BLM's authority to approve MATL's request for a ROW grant and the proposed Project's relationship to relevant BLM land use plans. The BLM accepted the invitation to be a cooperating agency on October 12, 2007.

The agencies published a State Supplemental Draft EIS and Federal Draft EIS (referred to hereafter as the Draft EIS) in February 2008. Following publication of the Draft EIS, the agencies held a 45-day comment period during which the public was invited to submit comments. Also during this time, the agencies held three public hearings, in Great Falls, Montana on March 11, 2008, in Cut Bank, Montana, on March 12, 2008 and in Conrad, Montana on March 13, 2008.

Three hundred fifty-two individuals and organizations submitted comments on the Draft EIS, either orally at public hearings or in writing. The agencies considered the comments received and provide their responses in Volume 2 of this Final EIS. Based on comments received from participating agencies and the public after the issuance of the Draft EIS, the following topics were identified as common themes or major issues and concerns:

- Avian and Wildlife Issues, including the quality of field surveys for wildlife, potential impacts on bird and wildlife habitat, potential impacts on birds from collisions with the transmission line, effects on flyways, and impacts of potential wind farms;
- Economic Issues, including the distribution of benefits and costs of the line and the line's effect on the cost of electric power;
- Farming Issues, including the issues farmers would face in having to farm around structures and how they would be compensated for their costs and inconvenience;
- Legal and Regulatory Issues related to NEPA, MEPA, Montana's MFSA, eminent domain, and other State and Federal requirements;
- Line Capacity Issues, including possible future increases in capacity and the ability of power to be shipped past the termination points of the MATL line;

- Line Issues, including its location, types of support structures, easement width, and the need for substations;
- Safety Issues related to clearance under the proposed transmission line and the safety of farming activities under and around the line;
- Socioeconomic Issues, including the expected impacts of the proposed Project and potential wind farms on local school enrollment, wages, and property tax revenues;
- Soils Issues, including concerns about potential compaction and erosion due to transmission line construction;
- Tax Issues, including questions about the taxation status of the proposed transmission line and affected farmland;
- Vegetation, Wetland and Weed Issues, including the potential for disturbance of wetlands and riparian areas, the potential for introduction of weeds, and the impacts of weed control;
- Visual Issues, including the effects of the transmission line and potential wind farms on views in and near Glacier National Park and the Rocky Mountain front;
- Wind Farm Issues, including potential impacts of bird and bat collisions, the effects of wind farms on views, and the potential for mitigation of wind farm impacts.

The agencies revised the EIS in response to comments, to correct errors, and to incorporate new information obtained since the Draft EIS. Principal changes in the Final EIS include:

- Updating of information and revision of analyses due to revisions made to MATL's MFSA application since publication of the Draft EIS. Principal revisions to the application are an increased right-of-way width, an increased commitment to use of monopoles on diagonal crossings of cropland and Conservation Reserve Program (CRP) land, an increased minimum line height over cropland to ensure safe operation of farm equipment, and a revised proposal for landowner compensation, including an alternative dispute resolution process.
- Analysis of minor variations to several Local Routing Options and one variation to a short segment of Alternative 2. These were evaluated due to specific concerns brought to the agencies' attention by affected landowners.
- Inclusion of additional information about migratory birds in the region.
- Inclusion of new information on wetlands locations and acreage in Teton County that became available after the publication of the Draft EIS.
- Updated analysis of costs for farming around transmission line structures, reflecting spring 2008 farming input costs and crop prices.

- Inclusion in the cumulative impacts analysis of new information on bird and bat mortality at the Judith Gap Energy Center.

In addition, the Final EIS includes identification of the agencies' preferred alternative.

The agencies will use this EIS in their respective decision making processes. Federal agency decisions will be issued subsequent to this EIS in the form of a Record of Decision for each agency or as a letter of concurrence, no sooner than 30 days after this Final EIS is available. DEQ may not make a final decision sooner than 15 days after the final EIS is available and may time a decision on whether to issue a certificate to coincide with the decisions of the Federal agencies.

S.4 Alternatives Description

This EIS evaluates the proposed Project, three action alternatives, several Local Routing Options, and minor variations. The No Action alternative, designated Alternative 1, reflects the status quo and serves as a benchmark against which the proposed Project and other alternative actions can be evaluated. The proposed Project is Alternative 2 (**Figure S-1**).[2] Alternative 3 was developed by MATL in response to a single siting criterion under MFSA that gives consideration to paralleling existing utility corridors. Alternative 4 describes an additional alignment (**Figure S-1**) that the Agencies developed based on comments and issues raised during the scoping process.

The Local Routing Options and minor variations, which could apply to Alternative 2 and in some instances to Alternative 4, were based on landowner or MATL input and comments on the March 2007 document and the Draft EIS. The agencies' preferred alternative consists of portions of Alternatives 2 and 4 and some local routing options as shown on **Figures S-4**, **S-5**, and **S-6** (See Section S.4.7)

S.4.1 Details Common to All Action Alternatives

Two types of transmission line support structures would be used: H-frame structures made of laminated wood poles, round wood poles, or steel structures for special applications, and metal monopoles (**Figure S-2**). The typical span between structures of either type (ruling span) would be about 800 feet, but could range from 500 feet to 1,600 feet. Approximately six to seven (average of 6.6) structures per mile would be required for an 800-foot ruling span.

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2 *Throughout this EIS, many references are made to the Project study area and analysis area. The Project **study area** is the area that includes the proposed and alternative alignments and areas where roads may be built or improved. The study area was defined by MATL in its MFSA application to DEQ. The **analysis area** is the area evaluated for each resource. Different resources have different analysis areas. For some resources, the analysis area is the entire study area. For other resources, it may be a smaller area defined by the potential extent of impacts or a larger region defined by the units (for example, counties) for which relevant data are available.*

Either type of support structure would incorporate 230-kV design standard synthetic insulators, hardware, and ground wires to provide nearly corona-free operation, as well as reduce audible noise and radio and television interference. The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands[3], expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum clearance of 27.2 feet for the safe operation of farm equipment under the line. Spacing between the two poles of a typical 65-foot high H-frame structure would be about 23 feet. A typical monopole would be about 90 feet high.

MATL would install bird strike diverters or similar warning devices in high risk areas such as lakes, river crossings, wildlife refuge areas, and high ridge crossings. MATL would comply with appropriate regulations of the Federal Aviation Administration (FAA) and install FAA-recommended colored aerial markers for aviation safety at river crossings. In addition aerial markers would be installed at major pipeline crossings as determined by consultation with pipeline companies.

MATL proposes to construct a new substation on farmland or range/pasture land approximately 10 miles south of Cut Bank at a location next to the site where NaturEner USA has begun building the Glacier Wind Project (formerly known as the McCormick Ranch Wind Park). The approximate location of the substation would be in the southeast quarter of Sec. 27 T32N R5W. The interconnection at the existing Great Falls Switchyard would require NWE to enlarge the switchyard to accommodate the MATL tie line and other proposed lines. The expanded Great Falls 230-kV Switchyard would be located on farmland or range/pasture land. MATL has submitted a copy of an executed interconnection agreement with NWE to the agencies as an addendum to the MFSA application.

MATL anticipates only minimum development of access roads to construct, operate, and maintain the line because most of the proposed Project ROW would be accessed from public roads, existing two-track roads (unmaintained trails), and farm fields. MATL would reclaim any new access roads in coordination with landowners and appropriate agencies and to DEQ environmental specifications. MATL does not anticipate maintenance of these access points with the exception of certain gate installations.

[3] In this EIS, farmland, cropland, and cultivated land are used interchangeably.

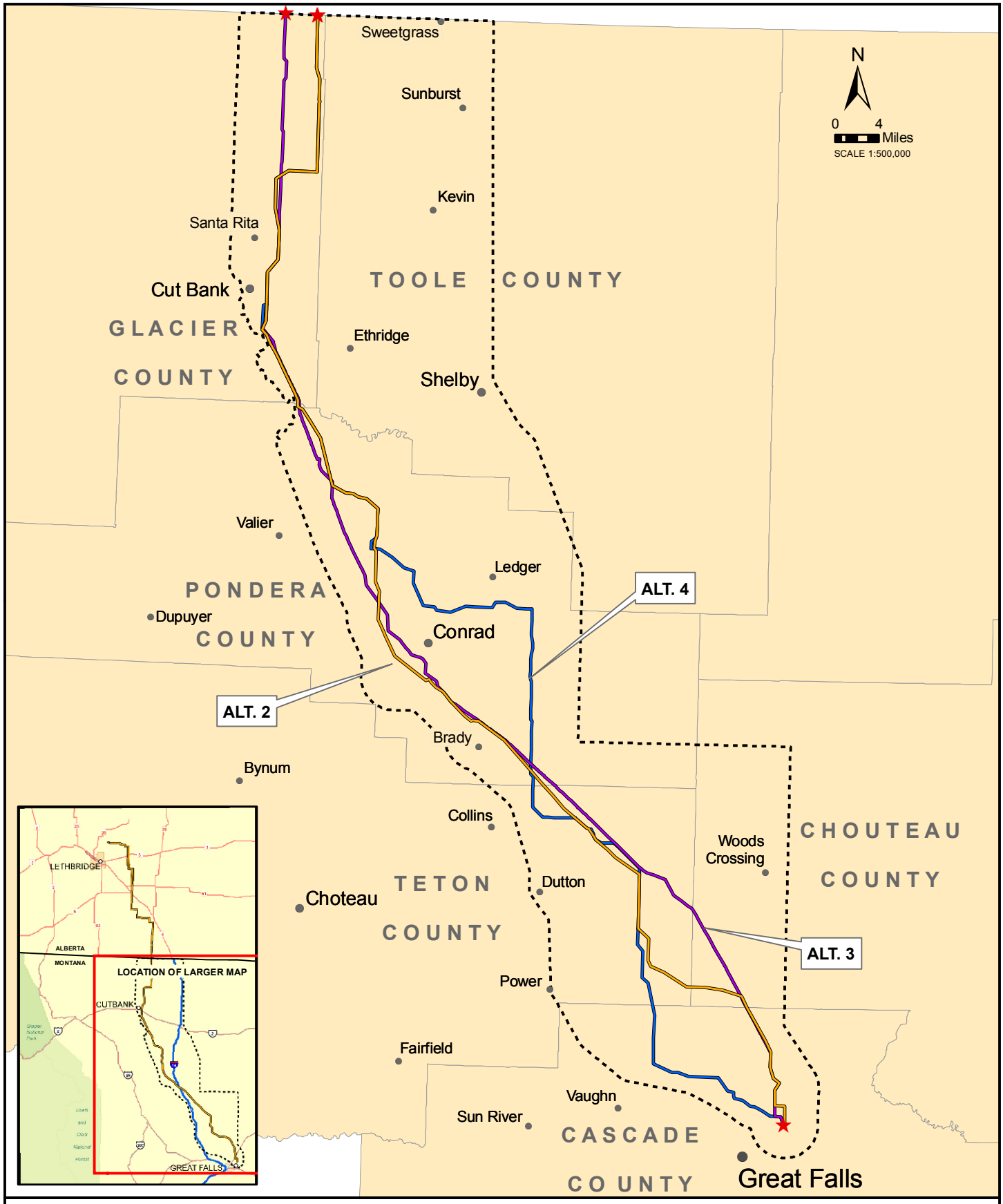


FIGURE S-1
PROJECT STUDY AREA

LEGEND

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-1_MATL_Project_Study_Area_012408.mxd

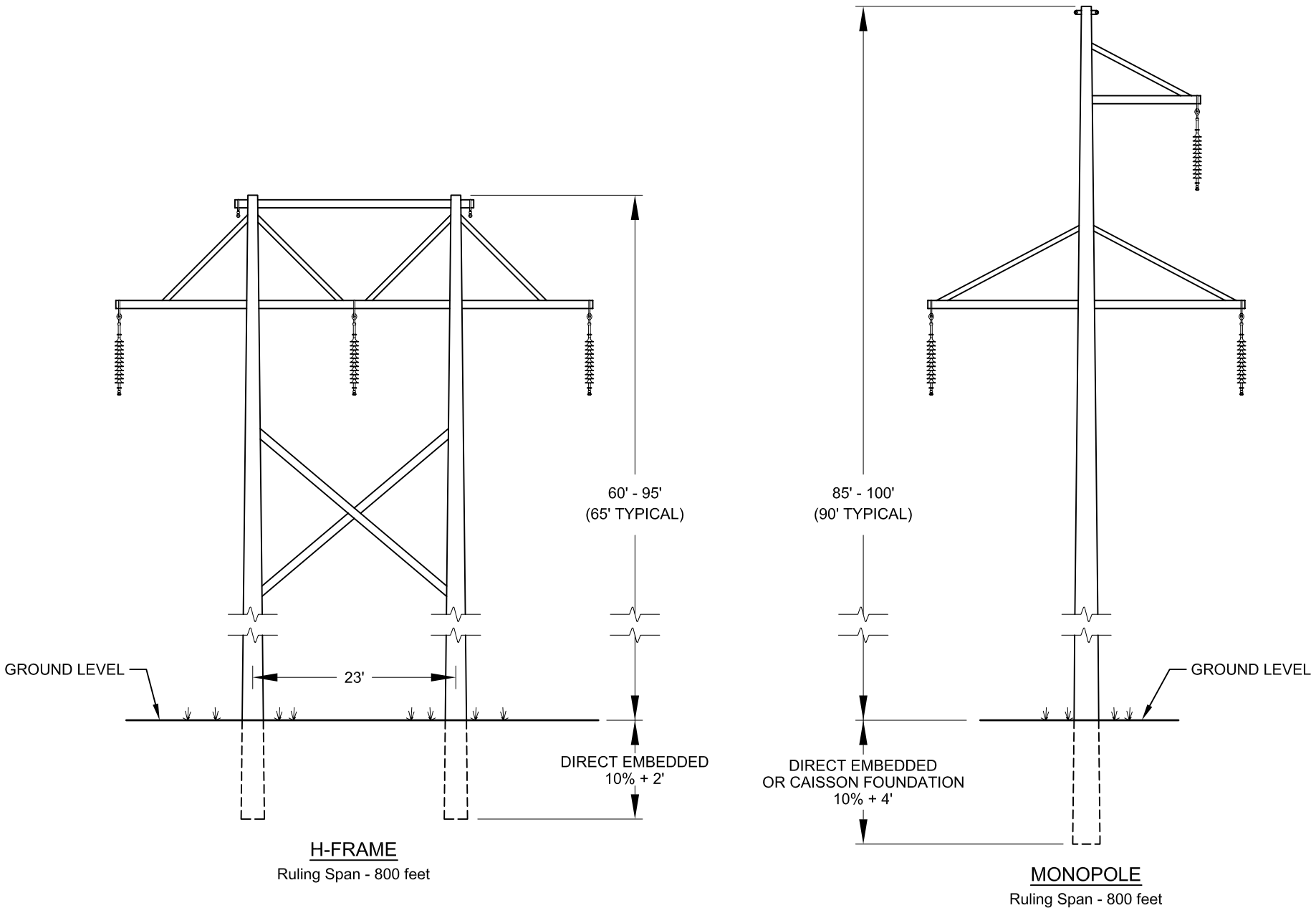


FIGURE S-2
PROPOSED MATL POWERLINE
TYPICAL SUPPORT STRUCTURES

Figure S-2_Typical Support Structures.dwg - DWH - 01/22/2008

Construction is anticipated to take 4 to 6 months to complete. A summary of construction tasks is included in **Table S-1**. Additional tasks would include the following:

- Pre-Construction: Environmental permitting, cultural resource clearance, final transmission structure siting, engineering design, land procurement, various utility studies, and major procurement.
- Surveying: survey control, alignment centerline location, and profile surveys. Light Detection and Ranging (LIDAR) would be used to provide much of this information. LIDAR is an airborne laser mapping technology that directly measures the shape of the earth's surface under the aircraft. LIDAR generates wide-area elevation information that can be used to make models showing details such as buildings, trees, and power lines.
- Geotechnical Survey: Investigations would be completed at selected key locations to establish foundation requirements. The geotechnical information is used to reduce problems during erection of the structures and assist with the cost estimate and bidding process for the project.
- Access Planning and Preparation: Crews would gain access primarily from existing public roads and trails as well as within the transmission line ROW. Graded surface access roads are planned for a few steep hillsides. Existing roads and trails would be left in comparable or better condition than before construction or to those conditions specified by landowners during easement lease negotiations.

  Gates would be installed where fences cross the ROW. Locks would be installed at landowner's request. Gates not in use would be closed but not locked unless requested by the landowner.

- Delivery and Assembly: Structure components, including poles, X-braces, cross-arms, insulators, and hardware for structures would be delivered and assembled.

  For H-frame structures poles would be set directly in holes and backfilled with compacted native soil or gravel. Any excess soil would be evenly regraded around the structure or hauled off site, depending on the landowner's preference. At heavy angled and dead-end structures, cast-in-place concrete footings would be installed.

  For monopoles after the pole is set in the hole, cement would be used, instead of soil, to backfill within approximately 1 foot of the soil surface. The salvaged topsoil material would be replaced on top of the cement. Any excess soil would be evenly regraded around the structure or hauled off site, depending on the landowner's preference.

TABLE S-1
SUMMARY OF CONSTRUCTION TASKS AND REQUIRED RESOURCES AND EQUIPMENT

Task	Crew Size	Typical Wage Level ($/hour)[a]	Equipment
Access Fencing/Reclamation	2	$15 to $18	¾ –ton post pounder
Framing	6	$17 to $20	Teleking 5-ton crane, Bobcat, 1-ton crewcab pickup
Setting	8	$17 to $20	330 Texoma digger, 35-ton setting crane, gravel truck, concrete truck, air compressor w/ tamper, Bobcat, (2) 1-ton crewcab pickups
Anchoring	3	$20 to $22	radial arm digger or retrofitted trench hoe
Material Handling	2	$17 to $20	(2) trucks
Pole Hauling	3	$20 to $22	pole truck, pickup
Stringing	31	$20 to $26	Tensioner, puller, 30-ton crane and pickup, soft line winder and pickup, cat pulling sock line and pickup, crane and pickup, flat deck and small crane, rider pole crew digger, pole truck

Notes:
[a]Wage levels extrapolated from "Montana Prevailing Wage Rates – Heavy Construction" Rates Effective March 10, 2006

- Conductor Installation: After erecting structures, conductor and ground wires would be installed. Large reels of conductor and overhead ground wire would be delivered to pre-selected pulling and tensioning sites (about every 2 miles) along the transmission line alignment. Adjustments made during tensioning would prevent the cable from sagging too much to comply with the applicable regulations.
- Reclamation: All disturbed areas would be reclaimed. These efforts typically include gate repair as necessary, regrading and revegetation, and waste material removal.

MATL proposes to commence construction as soon as all property rights are obtained and all necessary state and Federal authorizations are issued. MATL may not begin any construction activities unless and until it obtains all required permits.

MATL would design, construct, operate, and maintain the proposed transmission system in accordance with the National Electrical Safety Code (NESC), U.S. Department of Labor Occupational Safety and Health Act (OSHA) Standards, and other requirements and guidance as appropriate.

Construction staging areas would be located in previously disturbed areas whenever possible. In general, construction staging areas would either be located in communities near the ROW where rail and truck service are available or in rural areas where equipment could be unloaded from tractor-trailers. Construction staging areas would be on private land and would be subject to landowner negotiations and agreements. Construction staging areas would likely be located near Cut Bank, Valier, Conrad, Brady, Dutton, or Great Falls. MATL expects that staging areas would be established in three locations, with each staging area occupying about 5 acres. However, a few smaller areas (about 2.5 acres) might be used.

NWE and Alberta Electric System Operator system dispatchers would direct normal line operations, using MATL's facilities to operate circuit breakers, determine the amount of power required to serve the loads and configure the power system accordingly, schedule the proper generation amount, and monitor the power system to ensure reliable service. Circuit breakers would operate automatically to ensure safe transmission line operation. Normal farming and other activities would be permitted on transmission line ROWs if these activities do not interfere with line operation and maintenance or create safety problems.

Maintenance programs would include routine aerial and ground patrols. Aerial patrols would be conducted annually and as needed to check for damage to conductors, insulators, or structures after severe wind, ice, wild fires, or lightning storms. Ground patrols generally would occur every 5 years to detect equipment in need of repair or replacement. Ground patrols and subsequent repair activities would be scheduled to minimize crop and property damage. Noxious weed control plans would help guide herbicide treatments. Vegetation clearing may also be required in certain areas to minimize fire hazards.

For emergencies, crews would respond promptly to repair or replace damaged equipment. MATL would meet with respective landowners to arrange compensation for any damages incurred during emergency repair operations.

In its applications to DEQ and DOE, MATL has committed to project-specific environmental protection measures that may be used to avoid or reduce the intensity and/or duration of the impacts to resources. MATL proposes to implement a worker education program and on-site monitors to ensure that the site-specific environmental protection measures are strictly followed. Other guidance MATL proposes to use includes Western Area Power Administration's (WAPA) Construction Standard 13 (WAPA 2001), and Raptor-Safe Power Line Construction Practices (Edison Electric Institute [EEI] and Avian Power Line Interaction Committee [APLIC] 1996).

S.4.2 Alternative 1 — No Action

Under Alternative 1 the proposed Project would not be approved or constructed. Existing electrical transmission service in north-central Montana would be maintained and operated at its current level. In addition, companies with plans to construct new generation facilities in the analysis area would need to consider other transmission alternatives or not build them.

S.4.3 Alternative 2 — MATL's Proposed Project

Alternative 2 is to construct and operate a 129.9 mile long, 230-kV merchant transmission line between Great Falls, Montana, and Lethbridge, Alberta, as described in MATL's application to DEQ, its application to DOE for a Presidential permit and its application to the BLM for a ROW grant. The proposed alignment would have an operational ROW width of 105 feet. The line would extend from the expanded 230-kV Great Falls Switchyard north of Great Falls to a proposed new substation south of Cut Bank, and then north to the Montana-Canada border at the western edge of the Red Creek Oil Field. Monopole structures would be used on about 56 miles of the line where it would cross cropland and CRP land diagonally. On the remaining 74 miles, H-frame structures would be used for this alternative.

S.4.4 Alternative 3 – MATL B

Alternative 3 would be 121.6 miles long and would be similar to Alternative 2 in that the width of the ROW, types of access roads, implementation, conductors, markers, substations, construction, operations, maintenance, and MATL's proposed environmental protection measures would be the same as those described for Alternative 2 and in details common to all alternatives. The Alternative 3 alignment would be different from Alternative 2 in that it would generally parallel an existing 115-kV transmission line along the entire route from the 230-kV Great Falls Switchyard to a substation near Cut Bank and use only H-frame structures. Alternative 3 was developed by MATL in response to a single siting criterion under MFSA that gives consideration to paralleling existing utility corridors (Circular MFSA-2). This alternative alignment was not intended to address potential land use issues or maintenance issues but is the shortest and potentially the least costly alternative under consideration.

S.4.5 Alternative 4 – Agencies' Alternative

Alternative 4 was developed by the agencies to address public concerns regarding line interference with farming activities and close proximity to residences. This alternative would be 139.6 miles long and would be similar to Alternative 2 in that width of the ROW, types of access roads, implementation, conductors, markers, substations, construction, operations, maintenance, and MATL's proposed environmental protection measures would be the same as those described for Alternative 2 and in details common to all alternatives. The differences in environmental impacts between Alternatives 2 and 4 are discussed in Section S.6.

The Alternative 4 alignment would use portions of the Alternative 2 alignment from north of Conrad to the Montana-Alberta border. In other areas it would maximize the use of range and pasture land, where available. Where cultivated land would be crossed, it would generally be located along field or strip boundaries. Alternative 4 would require the use of monopole structures on all 88.9 miles of cropland and CRP land, not just where cropland and CRP land are crossed on the diagonal as in Alternative 2.

Although Alternative 4 is analyzed as a whole, the agencies could select some or all parts of this alternative or other alignments (i.e., the Local Routing Options described in the following section) whose environmental impacts have been considered in this EIS.

MATL has indicated that because Alternative 4 is longer than the other alternatives this alternative would be more expensive than Alternatives 2 and 3. MATL estimates that Alternative 4 would result in up to a 12 month delay and a $5 million increase in total costs. MATL has stated that if Alternative 4 is selected, the project would be unlikely to be built since it would have difficulties obtaining adequate financing for the project due to additional costs and delays. Comments received from landowners indicate that Alternative 4 would minimize impacts to farmland.

S.4.6 Local Routing Options

Based on public comments received on the March 2007 document and the Draft EIS, the agencies worked with landowners to refine Alternatives 2 and 4 to address landowner concerns related to costs, impacts to farming, impacts to other land uses, and proximity to residences. They developed 11 Local Routing Options for Alternative 2 (**Figure S-3**), a subset of which could also be included in Alternative 4. Subsequent to the publication of the Draft EIS, the agencies developed minor variations to four of the Local Routing Options to help mitigate and minimize impacts to existing and future land uses. One short variation to Alternative 2 was developed north of the Great Falls 230-kV Switchyard (Great Falls 230-kV Switchyard Variation). The suggested minor variations are described in more detail in the sections below.

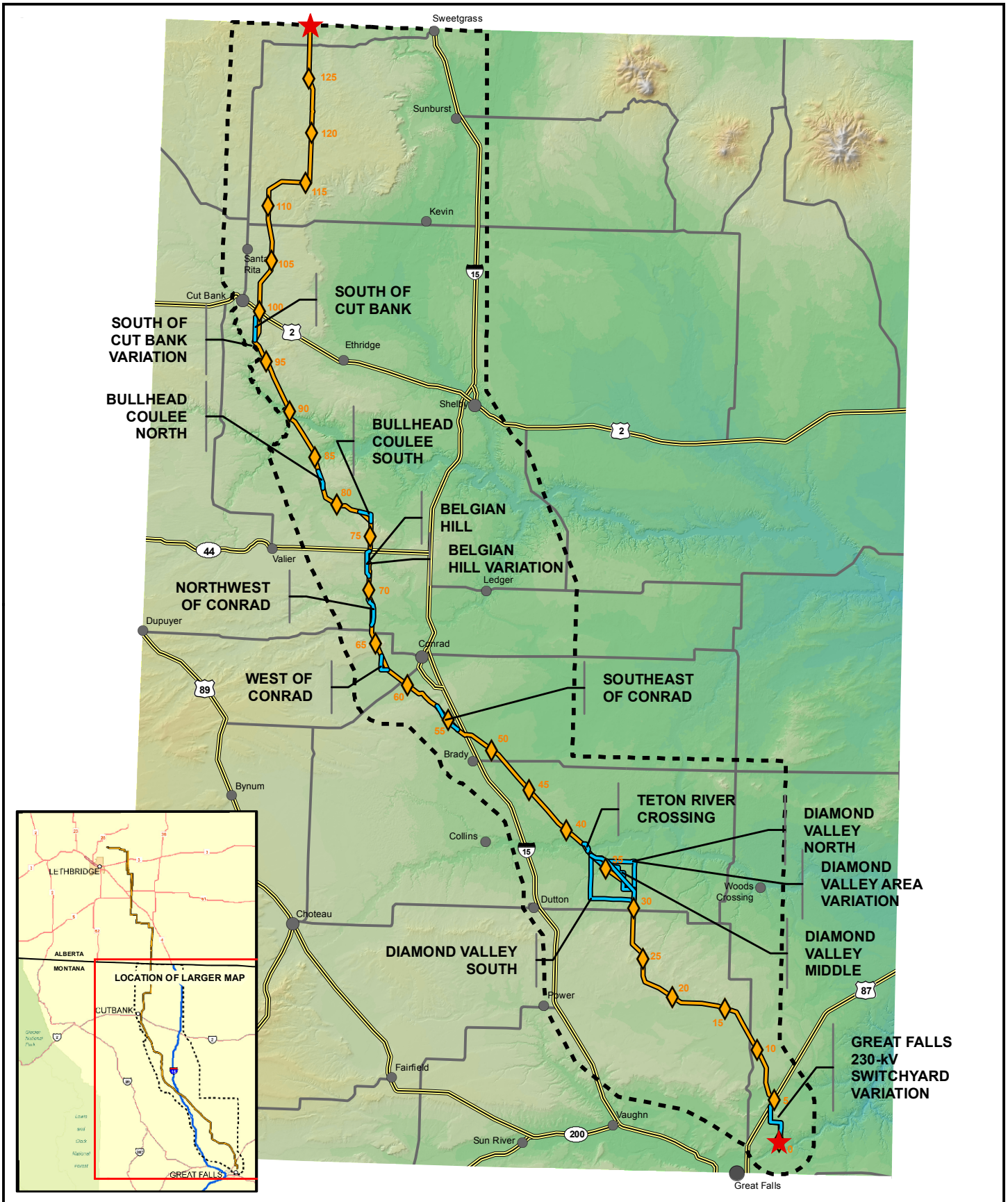


FIGURE S-3
LOCAL ROUTING OPTIONS AND VARIATIONS

GIS map by Ed Madej -TTEMI-HE FigS-3_MATL_Local_Routing_Options_All_091208.mxd

The Local Routing Options would not change environmental impacts for most resource areas. Several of the Local Routing Options would result in fewer impacts on crop production, including lower costs for farming around transmission line structures.

Diamond Valley Local Routing Options. Three Local Routing Options (Diamond Valley South, Diamond Valley Middle, and Diamond Valley North) were identified for the Diamond Valley area. These are alternative alignments for one segment of the line, applicable to both Alternatives 2 and 4. All three options would result in less diagonal crossing of farm fields, but two options (Diamond Valley Middle and Diamond Valley North) could interfere with aerial spraying because they would create acute angles with the existing NWE 115-kV transmission line. Also, the Diamond Valley North option could require relocation of a grain bin to avoid safety problems. Compared with Alternative 2, the Diamond Valley North option would reduce by one the number of residences within 1/2 mile of the alignment; the Diamond Valley Middle option would increase by one the number of residences within this distance; and the Diamond Valley South option would decrease the proximity of the line to one residence.

In comments on the Draft EIS, landowners suggested a variation on Local Routing Options in the Diamond Valley area as indicated on **Figure S-3.** It would better avoid one residence but would be slightly longer than Alternative 2. It would still involve crossing cultivated land with monopole structures. Compared to Alternative 2, it would cross an additional 1.3 miles of farmland (5.1 miles for Diamond Valley minor variation versus 3.8 miles for Alternative 2). MATL has indicated it would attempt to locate structures on field boundaries regardless of the selected route, but limitations in span length and possibly line tension would result in some structures being placed in mid-field locations.

Teton River Crossing Local Routing Option. The Local Routing Option for the Teton River Crossing Area could apply to Alternatives 2 and 4. It would allow one transmission line structure to be on a slightly more elevated terrace that would avoid an area that is reported to have flooded in 1964. It would also locate structures at the edge of fields to reduce interference with farming. It could, however, result in some clearing of tall growing riparian vegetation.

Southeast of Conrad Local Routing Option. The Southeast of Conrad Local Routing Option for Alternative 2 would reduce the crossing of cropland, but would increase by one the number of residences within 1/2 mile of the alignment and would increase the chance of encountering cultural resource sites.

West of Conrad Local Routing Option. The West of Conrad Local Routing Option for Alternative 2 would decrease the diagonal crossing of cropland and reduce potential interference with aerial crop dusting. A landowner has suggested that monopoles be used along field edges of this Local Routing Option. When presented with a choice

between H-frame structures at the edge of the field and monopoles crossing the fields diagonally, the landowner indicated that the monopole option would be preferable (Jones 2008).

Northwest of Conrad Local Routing Option. The Northwest of Conrad Local Routing Option for Alternative 2 would decrease the diagonal crossing of cropland, but increase the chance of encountering cultural resource sites. This Local Routing Option would increase the use of private range and pastureland instead of cropland (**Figure S-3**).

Belgian Hill Area Local Routing Option. The Belgian Hill Road area Local Routing Option for Alternative 2 would increase the distance between the transmission line and nearby residences, slightly reduce the diagonal crossing of cropland, and reduce but not fully avoid the crossing of irrigated fields. Portions of this option also could be used for Alternative 4. Like the Local Routing Option for Alternative 2, the option for Alternative 4 would increase the distance between the transmission line and nearby residences and reduce but not fully avoid the crossing of irrigated fields. The option for Alternative 4 would also decrease by one the number of residences within ½ mile of the alignment and avoid diagonal crossing of farmland.

In comments on the Draft EIS, the agencies learned of plans to develop a center-pivot irrigation system in the vicinity of the Belgian Hill Local Routing Option described in the Draft EIS. Thus, a minor variation resulted in the Local Routing Option being revised (**Figure S-3**). The Local Routing Option would remain about 0.5 mile from houses along Belgian Hill Road. However, it would increase the amount of cropland crossed by approximately 0.64 mile and add 0.50 mile of total line length compared to Alternative 2.

Bullhead Coulee South Local Routing Option. The Bullhead Coulee South Local Routing Option for Alternatives 2 and 4 would avoid interference with the planned location of a wind turbine unrelated to the proposed MATL transmission line, but would increase the potential for soil erosion.

Bullhead Coulee North Local Routing Option. The Bullhead Coulee North Local Routing Option for Alternatives 2 and 4 would reduce interference with farming. A minor variation to this Local Routing Option since the Draft EIS would reduce farming costs by placing more structures on field edges and has greater potential for landowner acceptance.

South of Cut Bank Local Routing Option. The South of Cut Bank Local Routing Option for Alternatives 2 and 4 would follow property boundaries better, would be located farther away from one residence, and would have greater potential for general local acceptance. This routing option would generally parallel Alternative 2. The agencies identified a minor variation for the southern ¼ mile of the South of Cut Bank Local

Routing Option that would eliminate several angle structures and keep the transmission line along the section line.

Great Falls 230-kV Switchyard Variation. A variation to Alternative 2 was developed by MATL and two landowners north of the Great Falls 230-kV Switchyard to mitigate and minimize impacts to existing and future land uses in this area. The variation would apply to Alternative 2 for the first approximately 5.1 miles of the alignment north of the Great Falls Switchyard. The variation involves constructing approximately 4.3 miles of the line using monopole structures capable of supporting two 230-kV transmission lines (double-circuit 230 kV line construction). The remaining 0.8 mile, from MP 4.3 to MP 5.1 would remain a single-circuit H-frame construction but would be relocated across to the northwest side of Highway 87.

The minor variation would also involve moving the Alternative 2 alignment to the east side of the existing 115-kV line between MP 0.9 and MP 1.9. The existing distribution line would be removed between MP 1.4 and MP 1.9 to provide the room for MATL's 230-kV alignment. MATL would pay for the existing distribution line to be placed underground or for the construction of a new overhead distribution line, depending on the landowner's permission and preference.

S.4.7 The Agencies' Preferred Alternative

The preferred alternative consists of portions of Alternatives 2 and 4 and some local routing options as shown on **Figures S-4, S-5,** and **S-6** and described in detail in Section S.6.3. It begins at the Great Falls Switchyard and follows Alternative 4 for 27.3 miles. From that point to Milepost 103.1 it primarily follows Alternative 2, but includes the Diamond Valley South, Teton River, Southeast of Conrad, Northwest of Conrad, Belgian Hill, Bullhead Coulee South, Bullhead Coulee North, and South of Cut Bank Local Routing Options. North of Milepost 103.1 the preferred alternative coincides with Alternatives 2 and 4 to join with Canada's approved route at the border crossing. The total length of the preferred alternative is 133.5 miles and would consist of about 83.6 miles of monopoles and 49.9 miles of H-frames.

The DEQ selected the preferred alternative because it represents the best balance between avoidance of impacts to farmland, cost, avoidance of houses, public acceptance, and use of public lands. DOE has also selected the described alternative as its preferred alternative.

N

0 4 Miles

50

45

15

40

35

30

25

20

15

10

5

0

87

200

Dutton

Power

Vaughn

Woods Crossing

Great Falls

FIGURE S-4
AGENCIES' PREFERRED ALIGNMENT SOUTH

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-4_MATL_PREFERRED_Alignment_South_091208.mxd

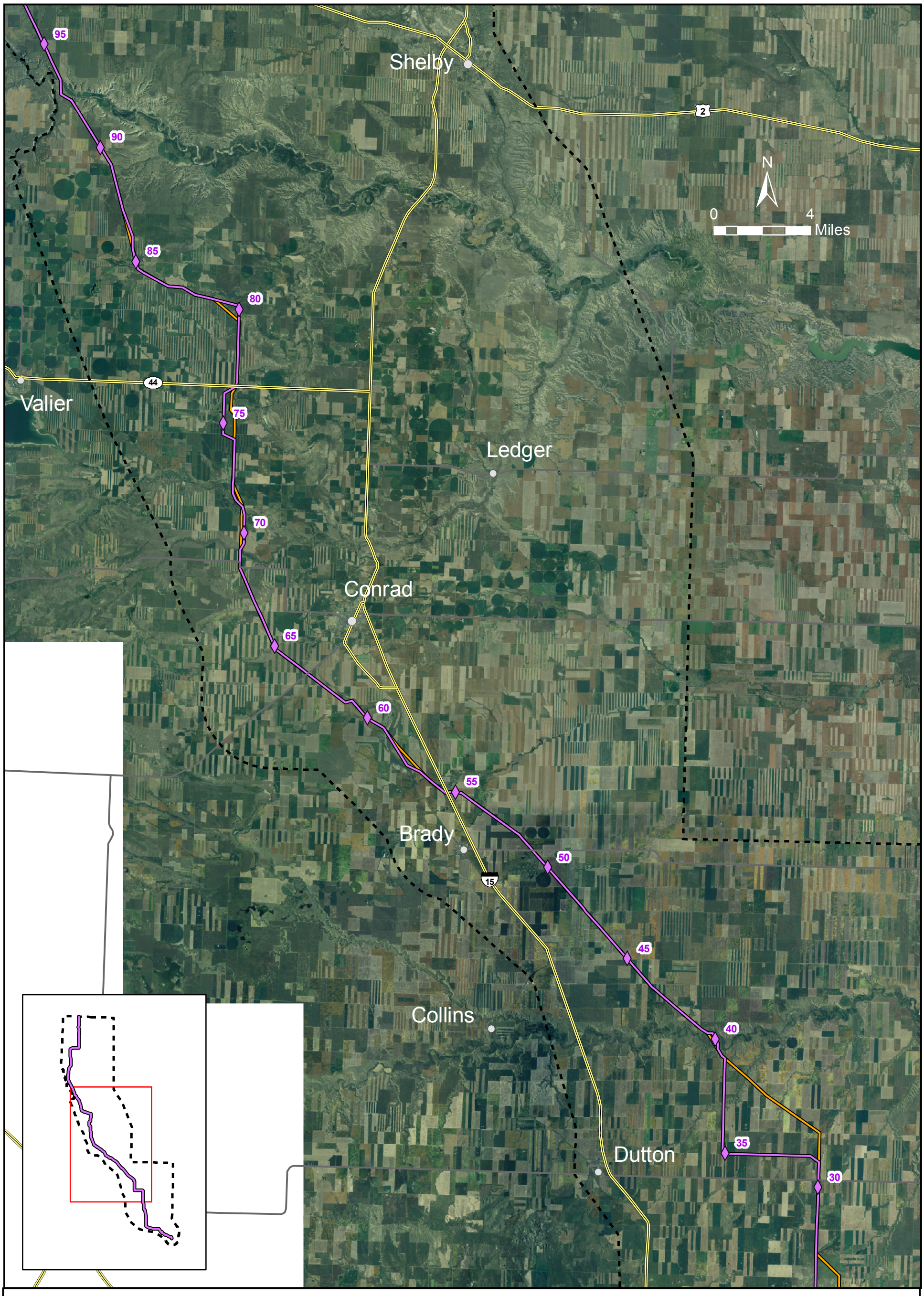


FIGURE S-5
AGENCIES' PREFERRED ALIGNMENT
MIDDLE

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-5_MATL_MTEDQ_PREFERRED_Alignment_Middle_091008.mxd

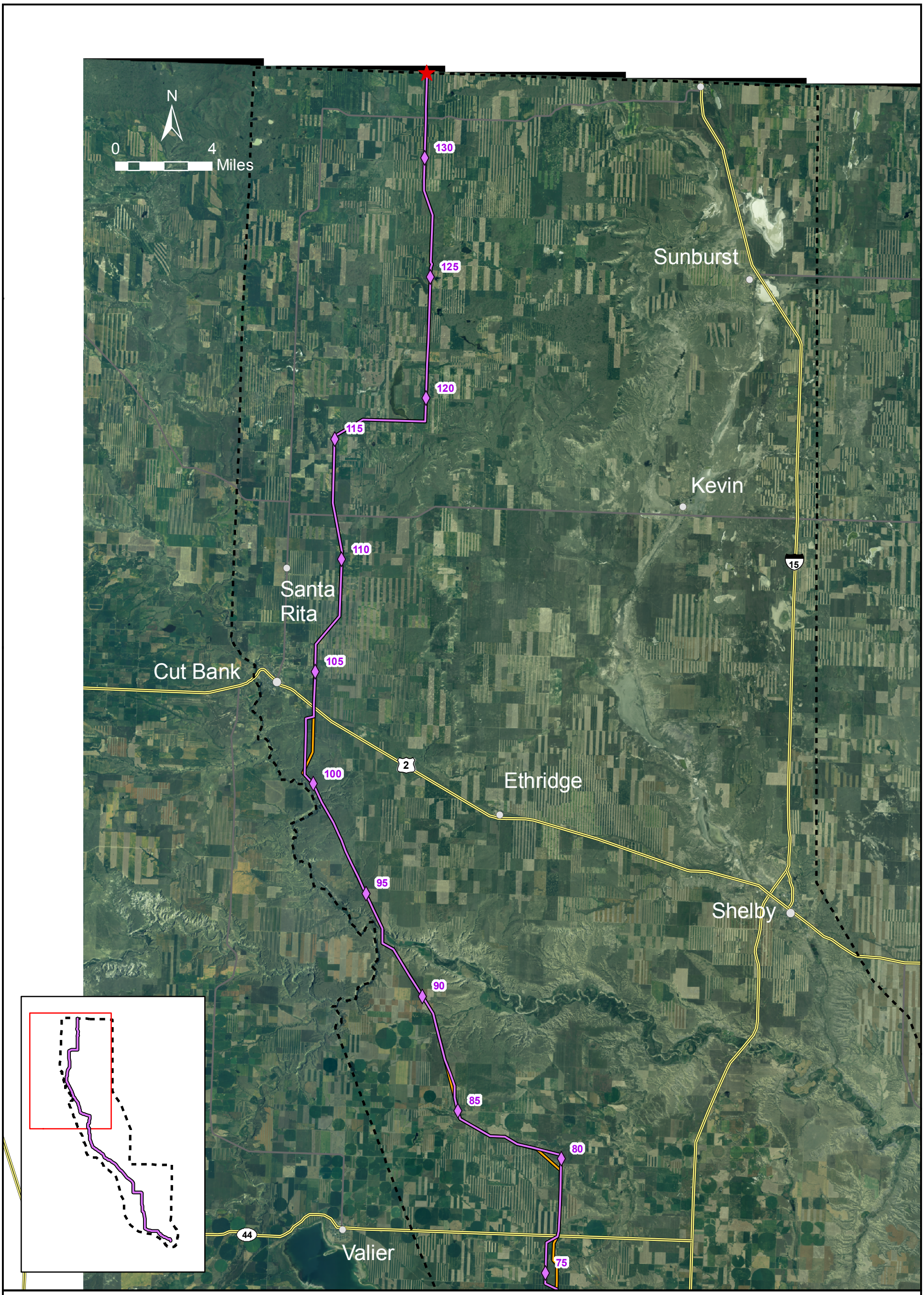


FIGURE S-6
AGENCIES' PREFERRED ALIGNMENT
NORTH

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigS-6_MATL_PREFERRED_Alignment_North_091208.mxd

S.4.8 Alternatives Considered But Dismissed

Several alignment and construction-detail alternatives were considered but eliminated from detailed study.

- Many additional local routing options
- MATL C alignment
- Building the line underground
- Unguyed, self-supporting angle and dead-end structures
- Requiring the use of helicopters to string the line
- Requiring monopole structures in all areas
- Cut Bank to Shelby alternatives
- NWE 115-kV transmission line rebuild alternative

Numerous local routing options were considered but eliminated from detailed analysis for one or more of the following reasons: did not address local land use concerns; did not reduce impact to farming; encountered greater geologic and topographic constraints compared to others being carried forward, would be more costly than the estimated cost savings to farmers, or would not reduce farming and land use impacts as well as others being carried forward.

The MATL C Alignment is in the MFSA application. It was dismissed from detailed study because it did not fully address issues raised during scoping. Specifically, although it would cross less cropland diagonally than Alternative 2, it would have crossed more farm land diagonally in the segment beginning south of Brady and continuing to approximately 10 miles north of Conrad. This alternative also would be located very close to several residences, and would not use as much range and pasture land, or parallel existing transmission lines as much as other alignments.

Building the line underground was dismissed because it would cost between two and 15 times more than overhead construction and because digging the trenches required to bury the line would result in greater construction disturbance to the land and require more time to install. The use of unguyed, self supporting angle and dead-end structures would reduce some of the impacts on land uses but this alternative was dismissed because of the substantially higher costs for these structures. Similarly, the use of helicopters to string the line would avoid the construction of some access roads but would significantly increase the cost of construction. Also, helicopters are most commonly used in extremely hilly terrain or in large marshy areas where ground access would be difficult. This alternative was dismissed because most of the study area is accessible from the ground.

The use of monopole support structures instead of H-frame structures for the entire length of the line was dismissed because of added costs with little additional land use benefits on rangeland. However, the use of monopoles is now proposed by MATL for about 56 miles of cropland and CRP crossed diagonally under Alternative 2 and is also analyzed for all cropland and CRP crossings (89 miles) under Alternative 4.

Two alternatives between Cut Bank and Shelby were identified but dismissed. In one alternative, MATL would build the proposed line from the border to Shelby where it would tie into WAPA's transmission system. Energy producers or other subscribers would then have to pay MATL for the use of its project between the border and Shelby and then pay WAPA for the use of its transmission system from Shelby to Great Falls. This alternative was dismissed because it would result in a substantial increase in transmission costs for those proposing to ship energy into the Great Falls area. In the second alternative, MATL and WAPA would jointly rebuild portions of WAPA's existing Shelby-Great Falls 230-kV line to a double circuit configuration. However, WAPA declined to pursue this alternative because it would reduce the reliability of its system.

MATL also considered an alternative that would combine its proposed transmission line with a rebuilt and updated version of NWE's existing 115-kV line between Cut Bank and Great Falls. This alternative was dismissed because it would create unacceptable operating logistics to maintain electric service while the line was being rebuilt and upgraded and because of the economics associated with the partnership.

S.5 Affected Environment

The 1,444,790-acre Project study area (Figure S-3) contains sparsely populated semi-arid rolling hills, gentle ridges, and plateaus bisected by alluvial corridors of the Marias and Teton rivers and their tributaries. The area has low topographic relief with elevations ranging from 4,372 feet above sea level in the northwest corner of the study area to about 3,016 feet above sea level on the Missouri River in the southeast corner of the area. Winters are extremely cold with desiccating winds and snow. May and June are the wettest months; however, perennial streams and rivers are sustained primarily from moisture derived from mountain snowpack.

The bedrock geologic units are primarily glaciated Cretaceous shales and sandstones. This region includes portions of eight hydrologic subbasins in Montana, all of which contribute to the lower Missouri River Basin. The primary surface water features in the analysis area are Cut Bank Creek, the Marias River and the Dry Fork Marias River, Pondera Coulee, the Teton River, Benton Lake, Hay Lake, and the Missouri River. Isolated prairie potholes, lakes, and stock reservoirs are scattered throughout the analysis area.

The majority of the land (90 percent) is privately owned, with the remainder being owned or managed by state, Federal, and local government agencies. Over 88 percent of the Project study area is considered agricultural lands, including irrigated and non-irrigated cropland and rangeland. Some dry land crops and grazing occur on state and Federal lands. Management of agricultural lands can involve the use of Differential Global Positioning System (DGPS)-guided farming equipment and vehicles (e.g., tractors, sprayers, combines) and other equipment used for irrigation, aerial and ground based spraying, plowing, seeding, fertilizing, and harvesting. These activities occur on 73 percent of the Project study area. This agricultural land base gives the landscape its characteristic and dominant patterns of linear strips of dryland cultivation and circular and rectangular shapes associated with irrigated fields. Views are typically expansive throughout the entire Project area, extending across rolling uplands and plains to the Rocky Mountain Front and island mountain ranges such as the Sweet Grass Hills and Highwood Mountains. Portions of Cascade, Chouteau, Glacier, Pondera, Teton, and Toole counties are in the Project study area.

Numerous oil and gas fields are located within the northern portion of the study area. Gathering lines and pipelines between 8 and 20 inches in diameter occur within or traverse the Project study area, including main lines, and transmission/trunk lines. Existing electric and magnetic fields (EMF) levels in the project vicinity are primarily dominated by EMF from common household appliances. Existing transmission and distribution lines also contribute to EMF levels.

S.6 Comparison of Alternatives and Impacts

No natural resources would experience a substantial impact from implementation of any action alternative. Potential impacts and cumulative impacts are similar for all three action alternatives.

S.6.1 No Action Alternative

The no action alternative would forgo the socioeconomic benefits of the proposed Project. Under this alternative there would be no additional employment from construction or operation of the transmission line, no increase in county or state tax revenue, and no additional impacts or compensation to farmers for use of their land. There would be no increased transmission capacity for new or existing power generators.

S.6.2 Alternatives 2, 3, and 4

All of the action alternatives would result in some loss of and interference with crop production. Alternative 3 would have the most impacts to crop production because it would include the most diagonal crossing of crop lands and because H-frame structures would be used on all cropland crossings. Alternative 3 would add to impacts associated with farming around structures because this alternative would closely parallel an existing 115-kV transmission line between Great Falls and Cut Bank. Alternative 4 would have less impact to crop production than the other action alternatives because it would include the least diagonal crossing of cropland and CRP land and would use monopoles on all cropland crossings. The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands, expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum clearance of 27.2 feet for the safe operation of farm equipment under the line. Construction activities under all of the action alternatives could result in increased soil erosion and release of sediment to streams, lakes, and wetlands, although best management practices would reduce or avoid potential impacts. The 500-foot wide analysis area associated with Alternative 4 would have the highest potential for soil erosion and sediment discharge to surface waters because it would cross the largest area of potentially unstable soils and the most streams. The analysis area associated with Alternative 2 would cross the smallest area of unstable soils and the fewest wetlands, while analysis area for Alternative 3 would cross the least number of streams but the largest area of wetlands and the largest number of lakes.

All action alternatives would produce some localized short-term emissions of particulate matter during construction. In addition, all action alternatives would emit very small amounts of greenhouse gases, principally from vehicle and equipment operations during construction. Construction-related greenhouse gas emissions were estimated using the Urban Emissions 2007 Model, and found to be negligible.

Under all action alternatives some bird mortality could result from collisions with transmission lines even after mitigating measures are applied; potential impacts would be somewhat less under Alternative 4 than the other alternatives because Alternative 4 would not be located as close to the Benton Lake National Wildlife Refuge. Under all action alternatives, portions of the transmission line would cross some potential habitat for special status species. Additional grouse lek surveys were conducted by MATL's consultant on April 30 (ground) and May 2 (aerial), 2008. Although some isolated sharp-tailed grouse were seen, no leks were observed. Observation of isolated grouse does not signify the presence of leks. Although no adverse effects to special status species are expected from any of the action alternatives, Alternative 2 would cross more potential habitat for special status species than Alternatives 3 and 4. In a letter dated September 16, 2008, the FWS has concurred with DOE's determination that the

proposed Project would not adversely affect any species listed as threatened or endangered under the Endangered Species Act.

Under all action alternatives, nearby residents and motorists using travel corridors would be exposed to views of a transmission line; Alternative 3 would expose the largest number of nearby residences and the longest length of travel corridors to near-field views within ½ mile of the proposed line. Alternative 4 would have the lowest overall visibility to nearby residences and travel corridors, but Alternatives 2 and 4 would have a similar number of residences within 1/4 mile.

Under any of the alternatives, no disproportionately high and adverse impacts would be expected to minority or low-income populations.

S.6.3 Agencies' Preferred Alternative

Beginning at the Great Falls Switchyard at Milepost 0, the agencies' preferred alternative includes a 27.3 mile segment of Alternative 4 because it better avoids cultivated and CRP land than Alternative 2. Compared to Alternative 2, this portion of Alternative 4 crosses 5.79 fewer miles of farmland, crosses 7.73 fewer miles of farmland diagonally, and has fewer nearby residences. Overall, this segment is 0.39 miles longer than the corresponding Alternative 2 segment and crosses 2.46 miles less state land. Much of this line segment parallels the WAPA-230 kV line that was sited during the 1980s to avoid cropland where possible.

From Milepost 27.3 to Milepost 31 the agencies' preferred alternative coincides with Alternative 2. From Milepost 31 the preferred alternative follows the Diamond Valley South Local Routing Option as far as milepost 39.2. While the Diamond Valley South option is 2 miles longer than the corresponding segment of Alternative 2, it better avoids diagonal crossings of farmland and better avoids houses. Compared to the Diamond Valley North Local Routing Option, it parallels fewer miles of field roads, better avoids a grain bin, and has two fewer crossings of NorthWestern Energy's 115-kV line.

At the crossing of the Teton River (Milepost 39.2) the agencies' preferred alternative incorporates the Teton River Local Routing Option because this crossing would remain higher above the river channel than Alternative 2, avoiding potential flood inundation, and largely remains along field edges north of the river.

From the Teton River the agencies' preferred alternative coincides with Alternative 2 as far as Milepost 56.2. Here, the preferred alternative uses the Southeast of Conrad Local Routing Option that locates the line on rangeland and field boundaries better than Alternative 2. From Milepost 59.2 to Milepost 69.3 the agencies' preferred alternative coincides with Alternative 2. Between Mileposts 69.3 and 72.2 the Northwest of Conrad

Local Routing Option was selected because it better avoids crossing farmland diagonally by using the range and pasture land available in the area.

From Milepost 72.2 to approximately Milepost 74 (the beginning of the Belgian Hill Local Routing Option) the preferred alternative coincides with Alternative 2. From Milepost 74 to Milepost 76.8 the Belgian Hill Local Routing Option was selected to avoid close proximity to several houses.

Between Milepost 48.1 and Milepost 75.5 Alternative 4 is not preferred. Compared to Alternative 2 as modified by Local Routing Options, this portion of Alternative 4 is 5.33 miles longer, resulting in additional environmental impacts and construction and maintenance costs. This portion of Alternative 4 also crosses 1.05 miles of additional farmland. Although this portion of Alternative 4 crosses 11.09 fewer miles of farmland diagonally than under Alternative 2 as modified by the Local Routing Options, MATL has committed to working with landowners to place interior structures along field strip boundaries where the landowner farms in strips that are narrower than a full quarter section. About half of this portion of Alternative 2 could be located on range or on field strip boundaries. Finally, the agencies have modified Alternative 2 to require the same use of monopoles wherever cropland and lands enrolled in CRP are crossed as required under Alternative 4.

From Milepost 76.8 to Milepost 79.5 the agencies' preferred alternative coincides with Alternative 2. From Milepost 79.5 to Milepost 81.2 the Bullhead Coulee South Local Routing Option was selected because, at the request of an affected landowner, it would allow construction of a wind turbine that would otherwise be precluded by Alternative 2.

From Milepost 81.2 to Milepost 85.5 the preferred alternative coincides with Alternative 2. From Milepost 85.5 to Milepost 87.2 the Bullhead Coulee North Local Routing Option was selected to reduce the amount of cropland crossed diagonally. From Milepost 87.2 to Milepost 100.5, the preferred alternative coincides with Alternative 2. The preferred alternative would cross BLM-owned land between Milepost 93.4 and Milepost 94.0. Beginning at Milepost 100.5 the preferred alternative uses the South of Cut Bank Local Routing Option because it would locate the line on field boundaries and better avoid a house without a large increase in line length. North of Milepost 103.1 the preferred alternative coincides with Alternatives 2 and 4 to join with Canada's approved route at the border crossing.

Although Alternative 3 is the shortest route, north of Cut Bank it is not preferred because it does not join with Canada's approved route. South of Cut Bank, Alternative 3 was developed to closely parallel an existing 115-kV line that was built in the 1960s prior to passage of MFSA. Alternative 3 is not the agencies' preferred alternative in that

area because it crosses more crop and irrigated land diagonally than Alternatives 2 and 4 and has little public acceptance or support.

S.6.4 Cumulative Impacts

CEQ regulations implementing the procedural provisions of NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.7). The regulations further explain that "cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

MEPA defines cumulative impacts as "the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type" (75-1-220(3), MCA). Related future actions may only be considered when these actions are under concurrent consideration by any agency through pre-impact statement studies, separate impact statement evaluations, or permit processing procedures (75-1-208(11), MCA). DEQ considers cumulative impacts when making the findings under MFSA (Administration Rules of Montana (ARM) 17.20.1604 (1)(b) and 1607(1)(a)(vii)).

Pursuant to ARM 17.4.627, whenever a state agency prepares a joint environmental impact statement that must comply with NEPA and MEPA, the joint document must be prepared in compliance with both statutes. The State agency may accede to and follow more stringent Federal requirements, such as additional content. NEPA requires reasonably foreseeable future actions to be included in the cumulative impacts analysis, not just those undergoing concurrent review.

Analysis of cumulative environmental impacts of a proposed Project and other actions helps to ensure that agency decisions consider the full range of consequences of the agencies' actions to the extent information is available.

At least 17 pipelines and 8 transmission lines transect the Project study area and vicinity. Other present and past activities in the vicinity of the proposed Project include farming (irrigated and non-irrigated), grazing, weed management, hunting and general recreation; growth of cities and towns, residential areas, and industrial and commercial areas; and development of Federal and state highways and county roads, railroads and railroad rights–of-way, communication facilities, military installations, conservation easements, airports, and national trails. Reasonably foreseeable future actions that could occur in the Project study area include the development of wind farms, rebuilding and relocating a WAPA transmission line, the Southern Montana Electric Highwood Generating Station 250 MW coal-fired power plant proposed to be built

outside Great Falls and the transmission line that would connect it to the local electric system, the proposed gas-fired Great Falls Energy Center 275 MW power plant, development of irrigation systems, and the potential for MATL to upgrade the capacity of the line from 300 MW to 400 MW in each direction.

DOE views wind development as a reasonably foreseeable future action. Various developers of wind farms that would be located near the MATL transmission line have purchased all the line capacity. However, wind farm developers that have purchased the capacity on the MATL line might not be the same power suppliers that use the line in the future. MATL has indicated that its transmission service rights contracts do not require the holder to supply any particular form of power generation. In light of the foregoing, DOE believes that MATL's proposed Project is separate from and has an existence and utility independent from the wind farms. While the wind farms would be the first users, it is reasonably foreseeable that other shippers can own the right to ship electricity over the proposed line. As a result, DOE does not view the currently subscribed wind farms as "connected actions" as defined in 40 C.F.R. § 1508.25(a) (1). Therefore, the impacts from potential wind farms are evaluated as cumulative impacts of the proposed Project, consistent with 40 C.F.R. § 1508.7.

Table S-2 summarizes impacts to natural resources, including cumulative impacts, considerations of environmental justice, and impacts to the existing transmission system (engineering and electric system reliability) among the alternatives analyzed.

S.6.5 Unavoidable Adverse Impacts

Unavoidable short-term adverse impacts from the proposed Project would be expected to occur to wetlands, land use (including transportation), noise, visuals, and native vegetation. Unavoidable long-term adverse impacts would occur to land use, birds, and visuals.

Construction activities could have short-term adverse impacts on land use, transportation, noise, and visuals, due to construction traffic and the establishment of staging areas, tensioning sites, access, and structure assembly areas. Construction activities could also have short-term adverse impacts on wetland resources from the alteration of surface water drainage patterns, disturbances and trampling of vegetation during construction, and from an increase in sedimentation to localized wetland areas from disturbances on adjacent properties. MATL's transmission line structures would not be placed in wetland areas, so no long-term impacts are expected for wetland resources. Native vegetation would be unavoidably disturbed, and weed infestations may occur for the short term during construction and before reclamation.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Land Use – General Impacts Comparative impacts of action alternatives depend on overall length of alignment, length on cropland, extent of diagonal crossing of cropland (diagonal crossings of cropland result in more interference with farming), and use of H frames vs. monopoles (use of monopoles reduces interference with farming)	There would be no additional impacts.	Facility construction traffic may conflict with movement of farm equipment on roads. Loss of and interference with crop production due to structures and roads, increased potential for weed introduction and spread, potential for equipment damage from hitting a structure, increased time to farm around poles, and some DGPS-guided equipment may be affected. Cropland crossings also increase the potential for crop duster accidents.	Same as Alt 2	Same as Alt 2	New projects would generally have short-term construction impacts and longer term changes to land use depending on the project. Wind development is generally compatible with a wide variety of land uses and generally would not preclude recreational, wildlife habitat conservation, military, livestock grazing, oil and gas leasing, dry land farming, or other activities that currently occur.
Land Use – Total Amount of Land Crossed		129.9 miles.	121.6 miles. Alt 3 disturbs the least.	139.6 miles. Alt 4 disturbs the most.	Impacts would depend on the type, location and design of development.
Land Use – Total Cropland Crossed		93.3 miles	95.3 miles. Alt 3 crosses the most.	88.9 miles. Alt 4 crosses the least.	
Land Use – Total Cropland Crossed Diagonally		54.9 miles	68.4 miles. Alt 3 crosses the most cropland diagonally.	28 miles. Alt 4 crosses the least cropland diagonally.	
Land Use – Total Ground Disturbance during Construction		330 acres	315 acres, Alt 3 disturbs least.	348 acres, Alt 4 disturbs most.	

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Land Use – Type of structure used on cropland		Monopoles used on about 56 miles of diagonal crossings of cropland; H-frames used on the remaining 74 miles	H-frames on the entire line, including cropland	Monopoles used for all 88.9 miles of cropland crossed	
Land Use –Total distance crossing Public Land, Special Management Areas and conservation easements		35.3 miles	24.7 miles. Alt 3 would cross the least	43.9 miles. Alt 4 would cross the most	
State Land (FWP owned) crossed, Great Falls Shooting Sports Complex		0.7 miles crossed	0.5 miles crossed	Alt 4 would avoid the Great Falls Shooting Sports Complex.	
State Land – Lewis and Clark Heritage Greenway Conservation Easement.		0.1 miles at the edge of the Lewis and Clark Heritage Greenway Conservation Easement.	Same as Alt 2.	Same as Alt 2.	
Montana State Trust Lands crossed		10.6 miles crossed	5.9 miles. Alt 3 would cross the least.	11.0 miles. Alt 4 would cross the most.	
Conservation easements crossed		USFWS – 0.0 miles CRP - 23.6 miles	USFWS - 3.8 miles CRP - 14.3 miles	USFWS - 1.7 miles. CRP – 30.8 miles	
BLM Land crossed		0.3 miles	0.1 miles	0.3 miles	

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Geology – Miles on Soil and Geologic Resources Prone to Mass Movement	There would be no additional impacts.	5 miles. Potential impacts would largely be mitigated by pole placement designed to span sensitive slopes and engineering design.	3 miles. Alt 3 has the least potential for mass movement that could result in pole instability. Potential impacts would largely be mitigated by pole placement designed to span sensitive slopes and engineering design.	20 miles. Alt 4 has the most potential for mass movement that could result in pole instability. Potential impacts would largely be mitigated by pole placement designed to span sensitive slopes and engineering design.	Impacts would depend on the type, location and design of development.
Soils – Miles on Unstable Soils (greater than 20 percent slope)	There would be no additional impacts.	16 miles. Soil erosion impacts would be mitigated by erosion control measures.	12 miles. Alt 3 has the least potential for soil erosion. Soil erosion impacts would be mitigated by erosion control measures.	24 miles. Alt 4 has the most potential for soil erosion. Soil erosion impacts would be mitigated by erosion control measures.	Additional development could cause increased soil erosion. Erosion control and storm water control would mitigate impacts.
Engineering- The structural reliability of electric transmission facilities in the area.	There would be no additional impacts.	No adverse impact to structural reliability is anticipated. All facilities are proposed to be constructed in compliance with accepted engineering standards.	Same as Alt 2	Same as Alt 2	None expected.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Hazardous Materials	There would be no additional impacts.	Wood structures would be treated with pentachlorophenol. Hazardous materials and wastes would be managed in accordance with State and Federal requirements	Same as Alt 2, except more wood poles would be used.	Same as Alt 2, except more wood poles would be used.	Construction, operation, and decommissioning future activities could require the use of some hazardous materials. Wastes would have to be managed as required by state and Federal law.
Electric and Magnetic Fields– Exposure Levels	There would be no additional impacts. Exposure levels in the project vicinity are primarily dominated by EMF from common household appliances.	Exposure levels outside the 500-foot-wide alignment would be less than 3.8 mG	Same as Alt 2.	Same as Alt 2.	If the line capacity increased to 400 MW in each direction, the electric field and the mean magnetic field would be higher, but electric field strength would remain below the state standard of 1 kV/m at the edge of the 500-foot-wide alignment in subdivision and residential areas, and the increase in the mean magnetic field would be slight

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Electric and Magnetic Fields– To ensure safety, pipelines near a transmission line would need to be grounded Length of 500-foot-wide Alignment Buffer Zone Within 100 feet of a Pipeline	There would be no additional impacts.	7.0 miles of the alignment would be within 100 ft of a pipeline 8″ or larger.	9.8 miles of the alignment would be within 100 ft of a pipeline 8″ or larger. Alt 3 has the longest distance where pipelines may need to be grounded.	5.7 miles of the alignment would be within 100 ft of a pipeline 8″ or larger. Alt 4 has the shortest distance where pipelines may need to be grounded.	Impacts would depend on the type and location of development
Electric and Magnetic Fields– Radio, TV, or DGPS Interference	There would be no additional impacts.	None anticipated for nearby residents. May be some potential for interference with DGPS guidance systems. MATL would correct DGPS interference.	Same as Alt 2. MATL would correct DGPS interference.	Same as Alt 2. MATL would correct DGPS interference.	There is a potential for wind farm power lines to cause interference, but this impact would depend on the type, location and design of development and might be avoided by proper siting and design.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Water – General Impacts	There would be no additional impacts.	Minor short-term adverse impacts to surface water quality could occur by temporarily increasing sources of sediment from the time of construction to reclamation completion. This impact would be mitigated by avoiding disturbance of water and riparian areas or by implementing measures to reduce sediment transport. The potential for impact is related to the number of stream and lake crossings.	Same as Alt 2.	Same as Alt 2.	Future development activities combined with the proposal could increase sediment and other pollutants to water resources in the analysis area and potentially affect water quantity and quality. Construction would likely cause increased stormwater runoff and soil erosion. Because projects would be required to reduce the potential for sedimentation, require proper pesticide application, and comply with waste water discharge requirements, and to employ mitigation measures, these impacts are likely to be minor and short term.
Water – Potential Number of Perennial Stream or River Crossings	There would be no additional impacts.	10 crossings within the 500-foot wide alignment	6 crossings. Alt 3 poses the lowest potential for impact within the 500-foot wide alignment.	17 crossings. Alt 4 poses the greatest potential for impact within the 500-foot wide alignment.	Impacts would depend on the type and location of development.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Water – Potential Number of Lake Crossings	There would be no additional impacts.	4 crossings within the alignment.	6 crossings. Alt 3 poses the greatest potential for impact within the alignment.	2 crossings. Alt 4 poses the least potential for impact within the alignment.	Impacts would depend on the type and location of development.
Wetlands - General	There would be no additional impacts.	Other than one structure that would be located in Black Horse Lake, structures would not be placed in wetlands. Construction disturbance could result in a change in wetland plant community if wetland hydrology is altered. This impact would be mitigated if wetlands were undisturbed during construction and maintenance. Potential impact is related to the area of wetlands crossed.	Same as Alt 2.	Same as Alt 2, except that Alt 4 would not require a structure in Black Horse Lake.	Impacts would depend on the type, location and design of development.
Wetlands – Total Wetlands and Potential Wetlands Crossed	There would be no additional impacts.	71.9 acres crossed within the 500-foot-wide alignment, including 68.5 acres of marshland, 0.8 acre lake wetlands, and 2.6 acres of river wetlands. Alt 2 would cross the least total area of wetlands.	78.1 acres crossed within the 500-foot-wide alignment, including 73.8acres of marshland, 0.8 acre lake wetlands, and 3.5 acres of river wetlands. Alt 3 would cross the most total area of wetlands.	77.4 acres crossed within the 500-foot-wide alignment, including 75.1 acres of marshland and 2.4 acres of river wetlands.	Impacts would depend on the type and location of development.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Floodplains	There would be no additional impacts.	Line would cross floodplains at the Teton, Dry Fork Marias, and Marias river crossings, but no transmission line structures would be placed in 100-year floodplains. A Local Routing Option for the Teton River crossing would place a structure in a slightly higher location that was not inundated in the 1964 flood.	Same as Alt 2, except that the Local Routing Option is not applicable.	Same as Alt 2.	There are no reasonably foreseeable future actions that would impact floodplains
Vegetation – General	There would be no additional impacts.	Temporary loss of vegetation and increased potential for weed emergence and dispersion in disturbed areas until reclaimed. Potential impact is dependent on the size of the construction disturbance.	Same as Alt 2.	Same as Alt 2.	Future activities would likely disrupt vegetation in a similar manner. Revegetation would likely make impacts minor and short term.
Vegetation – Number of non-cropland acres to be disturbed for construction	There would be no additional impacts.	214 acres.	206 acres. Alt 3 would disturb the fewest acres.	240 acres. Alt 4 would disturb the most acres.	Impacts would depend on the type, location and design of development.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Vegetation – Native range, forest and riparian vegetation cover crossed	There would be no additional impacts.	33.0 miles of grassland/shrubland and riparian vegetation would be crossed	22.5 miles of grassland/shrubland, riparian vegetation, and forest would be crossed	47.8 miles of grassland/shrubland, riparian vegetation, and forest would be crossed	Impacts would depend on the type, location and design of development.
Wildlife - General	There would be no additional impacts.	Short-term impacts include loss of individuals during construction or direct disturbance of species during critical periods in their life-cycles. Long-term impacts include habitat alterations, electrocutions, and collisions. Collisions would be reduced by line marking.	Same as Alt 2.	Same as Alt 2.	Activities would result in disturbance and displacement of wildlife during construction, followed by some permanent loss of habitat. Bird and bat mortalities would be expected due to collisions with wind turbines.
Wildlife – Mule Deer Winter Range	There would be no additional impacts.	19.4 miles of habitat would be crossed. Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.	20.5 miles of habitat would be crossed. Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.	27.7 miles of habitat would be crossed. Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.	Impacts would depend on the type, location and design of development. Herd animals could be affected if developments are placed along migration paths or in fawning areas.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Wildlife – Birds	There would be no additional impacts.	Collisions with transmission line could result in bird loss. The potential for bird collisions would be greatest in those portions of the line located near wetlands and the Benton Lake National Wildlife Refuge.	Similar to Alt 2.	Similar to Alt 2, but line would be farther from the Benton Lake National Wildlife Refuge	Additional development could reduce habitat. Wind farms potentially associated with the proposed line could cause estimated 2 to 3 mortalities per year of raptors (such as eagles and hawks) and 720 to 960 mortalities per year other birds from collisions with turbines. From other reasonably foreseeable wind farms, that could be built but are not directly associated with the MATL project, bird mortalities could range from 454 to 603 per year.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Wildlife – Bats	There would be no additional impacts.	There would be no additional impacts.	There would be no additional impacts.	There would be no additional impacts.	Wind farms potentially associated with the MATL project could cause an estimated 28 to 7,142 bat mortalities per year from encounters with turbines. From other reasonably foreseeable wind farms that could be built but not potentially associated with the MATL project, bat mortalities could range from 18 to 4,550 per year.
Fish – Expected impacts to habitat due to changes in water quality	There would be no additional impacts.	Fish habitat may be slightly affected by construction activity that contributes sediment to streams. Potential for impact is related to potential for impact to rivers and streams – 10 perennial river or stream crossings in the 500-foot wide alignment but no in-stream activities anticipated.	Similar to Alt 2, – 6 perennial river or stream crossings in the 500-foot wide alignment, but no in-stream activities anticipated. Alt 3 has the least potential to slightly affect fish habitat.	Similar to Alt 2, – 17 perennial river or stream crossings in the 500-foot wide alignment, but no in-stream activities anticipated. Alt 4 has the highest potential to slightly affect fish habitat.	Cumulative impacts that adversely affect water resources could adversely affect fish and fish habitats.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Special Status Species – Vegetation	There would be no additional impacts.	All known occurrences of special status plant species (all of which are riparian or wetland plants) are located outside the study area. Potential for impact is based on amount of riparian area crossed. Alt 2 crosses least amount of riparian habitat, 1.4 miles.	Alt 3 crosses 1.7 miles of riparian habitat.	Alt 4 crosses most riparian habitat, 1.9 miles.	Construction activities could affect threatened, endangered, and sensitive species in the same manner that vegetation could be affected.
Special Status Species – Wildlife Habitat crossed. Although no black-footed ferrets are found in the area, prairie dog towns if crossed by the proposed alignments may be habitat for this federally listed endangered species. Alternatives also would cross actual or potential habitat for 5 bird species listed as sensitive species by the Montana Natural Heritage Program (MNHP) and/or BLM and 3 fish species listed as sensitive by MNHP.	There would be no additional impacts.	19.9 miles. Alt 2 crosses the most habitats for one or more special status species. FWS concurred with the biological assessment's conclusion that there would be no effect on black-footed ferrets or their critical habitat.	11.3 miles. Alt 3 crosses the least habitat for special status species.	11.7 miles.	Construction activities could affect threatened, endangered, and sensitive species in the same manner that wildlife and aquatic resources could be affected in general.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Air Quality – General Air quality in the analysis area is designated as attainment for all criteria pollutants.	There would be no additional impacts.	Some localized short-term emissions of particulate matter would occur during construction.	Same as Alt 2.	Same as Alt 2.	Construction of new facilities such as wind farms and other electrical generating facilities would generally have short-term impacts similar to construction impacts of the transmission line, but because of differences in timing, few impacts would likely be cumulative with air quality impacts of the proposed action. Operation of future facilities could increase other emissions, but few impacts would be cumulative with air quality impacts of the proposed action.
Air Quality – Greenhouse Gases	There would be no additional impacts.	Impacts would be negligible.	Same as Alt 2.	Same as Alt 2	Construction and operation of new facilities could either help reduce or contribute to emissions of greenhouse gases; this depends on the type, size, and quantity of any generation built.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Noise – General	There would be no additional impacts.	Short-term, localized construction noise. Operation of the transmission line would not add substantially to existing background noise levels.	Same as Alt 2.	Short-term, localized construction noise. In one subdivided area (0.16 mile), noise from rain or wind on the transmission line would be below the Bonneville Power Administration and U.S. Department of Housing and Urban Development guidelines, but may exceed the DEQ standard.	Construction of new facilities such as wind farms and other electrical generating facilities would generally have short-term impacts that would vary in magnitude and duration based on the size and complexity of the project. Operation of wind turbines would result in noise; noise levels would depend on the observer's location.
Social Resources	No change to existing conditions and trends.	Increased short-term construction and long-term maintenance employment opportunities. Potential for impact to local schools, community structure and social services from influx of workers is small.	Same as Alt 2.	Same as Alt 2.	Any large development or numerous simultaneous small developments could strain local services. Smaller projects would have impacts similar to Alt 2. There could be a perception that wind turbines change the local character of a given area. There could be disagreement over wind turbine location.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Economics – Short term	There would be no change in employment opportunities.	There would be short-term construction-related employment opportunities.	Same as Alt 2.	Same as Alt 2. MATL has stated it would take longer to build and be more costly.	Depending on the size and number of activities and location, impacts could vary from very minor to large.
Economics – Counties	There would be no opportunities for long-term operation and maintenance employment and no increased county tax revenues.	There would be opportunities for long-term operation and maintenance employment. County tax revenues would increase.	Same as Alt 2. (Except that farmers would have higher additional costs from having transmission structures on their land.)	Same as Alt 2. (Except that costs to farmers from having transmission structures on their land would be less.)	Depending on the size and number of activities and location, impacts could vary from very minor to large. Such impacts would include jobs, income, taxes and effects on social services.
Economics – State	There would be no increased opportunity for power import or export, no increased competition that could reduce costs to ratepayers, less opportunity for wind or other power generation facility start up and no increased state tax revenues.	Opportunities to import or export electric power would increase. Increased competition may reduce cost to ratepayers. Creation of opportunities to start up wind generation facilities. State tax revenue would increase.	Same as Alt 2.	Same as Alt 2. MATL has stated it would take longer to build and be more costly.	Depending on the size and number of activities, impacts could vary from very minor to large. Such impacts would include jobs, income, and taxes, as well as changes in the local electric system.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Economics – Landowners and Farmers	No change in existing conditions and trends.	Farmers would incur additional costs estimated at $ 57,000 to $213,000 per year. MATL would compensate landowners with one time easement payments, annual per-pole payments, and annual flat fees for the additional costs of farming caused by the transmission line. Some agricultural landowners would also receive a state property tax exemption for property within 660 feet of the centerline. Long-term impacts on land values are likely to be small.	Additional cost to farmers is estimated to be $ 75,000 to $ 271,000 per year. Compensation would be provided as described for Alt 2. Alt 3 would have the highest cost to farmers before compensation. Some agricultural landowners would also receive a state property tax exemption for property within 660 feet of the centerline. Long-term impacts on land values are likely to be small.	Additional cost to farmers is estimated to be $ 41,000 to $ 146,000 per year. Compensation would be provided as described for Alt 2. Alt 4 would have the lowest cost to farmers before compensation. Some agricultural landowners would also receive a state property tax exemption for property within 660 feet of the centerline. Long-term impacts on land values are likely to be small.	Depending on the size and number of activities and location, impacts could vary from very minor to large.
Paleontological Resources – The Two Medicine Formation is the geologic unit with a high probability of containing fossils.	There would be no additional impacts.	Construction activity could disturb fossil sites. Since most of the Two Medicine Formation is covered by 1 to 15 feet of material, little or no impact is anticipated.	Similar to Alt 2.	Similar to Alt 2.	Future activities could uncover or destroy currently unknown paleontological resources.

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Cultural Resources	There would be no new impacts to cultural resources or Traditional Cultural Properties.	Construction could disturb archaeological or historical resources. The 500-foot wide analysis area would encompass 8 known sites eligible for the NRHP and 33 sites of undetermined eligibility. Traditional Cultural Properties or potential locations identified by knowledgeable Tribal members would be avoided.	Similar to Alt 2. Alt 3 would encompass 7 sites eligible for the NRHP and 9 sites of undetermined eligibility.	Similar to Alt 2. Alt 4 would encompass 4 sites eligible for the NRHP and 19 sites of undetermined eligibility.	Future activities could uncover or destroy currently unknown cultural resources.
Visuals – General	There would be no additional impacts.	Decline in aesthetic quality of viewsheds, increase in visual contrast or landscape change due to contrast with natural landscape. Potential impact is primarily dependent on proximity of viewers and residences to the transmission line.	Same as Alt 2.	Same as Alt 2.	Impacts would depend on the type and location of development. Future activities would increase the developed character of the landscape for the long term. In particular, wind farms would be highly visible because of the introduction of turbines into rural landscapes with few other comparable structures.
Visuals – Residences within ¼ mile	No residences would be exposed to the view of a new transmission line.	20 residences.	25 residences. Alt 3 would be visible from the highest number of residences within this distance.	20 residences.	

TABLE S-2
SUMMARY OF IMPACTS BY RESOURCE AREA

Resource	No Action	Alternative 2	Alternative 3	Alternative 4	Cumulative Impacts
Visuals – Number of Residences ¼ - ½ mile	No residences would be exposed to the view of a new transmission line.	51 residences.	65 residences. Alt 3 would be visible from the highest number of residences within this distance.	45 residences. Alt 4 would be visible from the lowest number of residences within this distance.	
Visuals – Residences within ½ to 1 mile	No residences would be exposed to the view of a new transmission line.	111 residences.	139 residences. Alt 3 would be visible from the highest number of residences within this distance.	111 residences.	
Visuals – Within ½ mile of a travel corridor (I-15 and US Highways 2 and 87)	No travel corridors would be exposed to the view of a new transmission line.	6.1 miles.	7.6 miles. Alt 3 would have the longest near-field visibility from travel corridors.	5.0 miles. Alt 4 would have the shortest near-field visibility from travel corridors.	
Environmental Justice	No change in existing conditions.	No disproportionately high and adverse impacts to minority or low-income populations were identified.	Same as Alt 2	Same as Alt 2	Future activities could have an impact on environmental justice depending on location and size of the project.
Electric System Reliability – The ability of the electric system to operate within established criteria under normal and emergency conditions.	No change.	No adverse effect on electric system reliability.	Same as Alt 2	Same as Alt 2	Depending on the project, there might be changes in the local electric system.

TABLE S-2 (Cont.)
SUMMARY OF IMPACTS BY RESOURCE AREA

Notes:

Alt	Alternative
BLM	Bureau of Land Management
CRP	Conservation Reserve Program
DGPS	Differential Global Positioning System
EMF	Electric and Magnetic Field
FWP	Montana Dept. of Fish, Wildlife and Parks
kV/m	Kilovolt per meter
mG	Milligauss
MW	Megawatt
NA	Not applicable
NRHP	National Register of Historic Places
ROW	Right of Way
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service

Long-term impacts to land use include loss of production of farmland, increased risk to aircraft, and interference with farming activities. An increase in avian mortality would be unavoidable and long term. Visual resources would experience unavoidable adverse impacts to the aesthetic quality of the landscape by transmission lines.

S.6.6 Irreversible or Irretrievable Commitments of Resources

If concrete footings are used, the concrete would be left in place and irreversibly committed. Fuel used during construction and decommissioning would be irreversibly committed. If wood structures are used, it is probable that these poles would not be available for future transmission projects and would be irreversibly committed. Energy lost during transmission line operation (line losses) would be irretrievably committed.

Paleontological and cultural resources, including traditional cultural properties, are nonrenewable resources. The MATL project would increase access to the areas where these resources may be located. This increased access could lead to intentional damage from looting and vandalism, including unauthorized relic collecting, theft, and defacement, and result in the loss of information and destruction of the resource. Any impacts to these resources would constitute an irreversible commitment of resources.

S.6.7 Short-Term Use and Long-Term Productivity

Short-term uses are characterized by existing land use as affected by the proposed Project and all activities that such land use facilitates. Long-term productivity involves sustaining the interrelationships of each resource in a condition sufficient to support ecological, social, and economic health.

All action alternatives would manage resources within requisite regulatory standards for air quality, water quality, cultural resource preservation, and wildlife management. Impacts from any of the action alternatives to visual resources and farming activities would not adversely affect long-term productivity of the resource. Overall impacts to socioeconomic resources would be beneficial for all action alternatives. Because Alternative 4 contains additional environmental mitigation measures for avoiding adverse impacts to farming, riparian areas, visual resources, and surface water, this alternative presents the most protective alternative for the maintenance and enhancement of long-term productivity of the environment while benefiting socioeconomic resources.

S.7 Regulatory Restrictions Analysis

MEPA requires the disclosure of any regulatory impacts on the private property rights of an applicant. These impacts are usually estimated in terms of economic cost. Alternatives and mitigation measures are designed to further protect environmental, cultural, visual, and social resources, although they add to the cost of the Project. Alternatives and mitigation measures that are required by Federal or state laws and regulations to meet minimum environmental standards do not need to be evaluated for extra costs to the project proponent. If approved, DEQ would require that the project meet standards for noise and electric field strength in residential and subdivided areas, unless affected landowners waive these requirements. The project would be required to meet minimum standards set forth in the National Electrical Safety Code and Federal Aviation Administration requirements for marking the line.

Project costs and costs of mitigation are presented in **Table S-3**. Monetary values of impacts, except for estimated costs to farmers, cannot reasonably be quantified. Many potential adverse environmental impacts are minimized through measures proposed by the applicant and the application of environmental specifications. A plan for monitoring the facility is described in environmental specifications for the project, as required by administrative rules implementing MFSA and further detailed in ARM 17.20.1901.

TABLE S-3
PROJECT COSTS

	Alternative 2	**Alternative 3**	**Alternative 4**
Length (miles)	129.9 (56 miles monopoles, 74 miles H-frames)	121.6 (all H-frames)	139.9 (88.9 miles monopoles, 51 miles H-frames)
Estimated Construction cost [a]	$44,036,832	$39,287,987	$48,430,930
Estimated Total cost with mitigating measures	$44,769,832	$39,931,987	$49,296,930

[a] H-frame structures $323,092 per mile; monopole structures $359,429 per mile (MATL 1/26/07 Canadian costs were updated using the August 8, 2008, exchange rate).

Bond requirements and other mitigation measures that might be imposed by DEQ would add from 1.1 to 1.7 percent to the basic construction cost of Alternative 2. Alternative 3 would be less expensive to build than Alternative 2. Alternative 4, including bond, would cost 11.9 percent more than the basic construction cost of Alternative 2 or 10.7 percent more than the cost of Alternative 2 including bond.

Mitigation measures whose costs can be estimated are precision mapping of unstable soils, archaeologist observation of construction, wetlands delineation, bonding for reclamation and revegetation, and the use of conductors with dulled, non-reflective surfaces. Monopole structures in addition to the 56 miles that MATL has committed to use for diagonal crossings of cultivated cropland might also be required in some areas.

The costs of other measures, such as damage payments are not readily quantifiable but would add to the total cost of the Project. MATL has already negotiated easements or options across portions of the proposed Project alignment. The cost to MATL of acquiring these easements is unknown. If MATL has already paid for ROW access to lands that may be crossed by the Alternative 2 alignment, and that alignment is not permitted, MATL may lose the money already spent. Alternative 2 with additional mitigation measures and the use of monopoles on selected portions of the transmission line would impose the least regulation on MATL's private property rights while reducing environmental impacts.

S.8 Intentional Destructive Acts

Intentional destructive acts, such as sabotage, terrorism, vandalism, and theft, sometimes occur at electric utility facilities. These acts include shooting at insulators, power lines, transmission towers, or substation equipment; vandalism; and theft of equipment, supplies, tools, or materials. Vandalism and thefts are most common. However, these acts do not generally cause a disruption of electric service to the area.

In general, it is possible that destroying support towers or other equipment may result in disruption of electrical service depending on the size (voltage and capacity) of the transmission line, the particular act, and the configuration of the local transmission system. However, given the characteristics of the proposed MATL transmission line project and its rural location, it is unlikely that intentional destructive acts would occur. Furthermore, even if such an act did occur, it is not likely to have a major impact on the regional transmission system or local electrical service because the electric system is designed to withstand the instantaneous loss (regardless of the cause) of key elements and still provide uninterrupted service to customers.

1.0 Purpose, Benefits and Need for the Proposed Actions

This document constitutes the final state and federal environmental impact statement (Final EIS) for the United States portion of the Montana Alberta Tie Ltd. (MATL) 230-kV transmission line.

Background

MATL is proposing to construct and operate an international 230-kilovolt (kV) alternating current, merchant (private) transmission line that would originate at an existing NorthWestern Energy (NWE) Great Falls 230-kV Switchyard near Great Falls, Montana, and extend north to a new substation to be constructed northeast of Lethbridge, Alberta, crossing the U.S.-Canada international border north of Cut Bank, Montana. Approximately 130 miles of the 203-mile transmission line is proposed to be constructed in Montana. The line would be owned by MATL, a private Canadian corporation owned by Tonbridge Power. The proposed line would be part of the Western Interconnection (western grid), and a phase shifting transformer would be installed at the substation near Lethbridge to control the direction of power flows on the line.

Before constructing and operating the proposed transmission line, MATL must obtain a Presidential permit from the U.S. Department of Energy (DOE) (10 CFR 205.320 *et seq.*) and a Certificate of Compliance (certificate) from the State of Montana Department of Environmental Quality (DEQ) under the Montana Major Facility Siting Act (MFSA)(75-20-101, *et seq.*, Montana Code Annotated [MCA]). MATL has submitted an application for a certificate to the DEQ and an application to DOE for a Presidential permit. These applications address the portion of the transmission line between Great Falls and the border between the United States and Canada. **Figure 1.1-1** shows the location of the proposed facility and alternatives.

Environmental Review

DEQ approval of the proposed Project must be obtained before construction may begin. In response to the application for a certificate, DEQ must conduct an environmental review. This review is required by the Montana Environmental Policy Act (MEPA)(75-1-101 *et seq.*, MCA) and MFSA. Granting a Presidential permit also requires an environmental review conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 USC §§ 4321-4347). Because of the similarities in the two environmental review processes and the requirements of the regulations implementing NEPA and MEPA, and to reduce the burden and expense of preparing separate documents, DOE and DEQ decided to cooperate as joint lead agencies in the preparation of a single environmental review document that would address both purposes. Initially, DOE considered an environmental assessment (EA) to be the appropriate level of review under NEPA while the DEQ considered the appropriate level of review for MEPA to be an environmental impact statement (EIS) analysis.

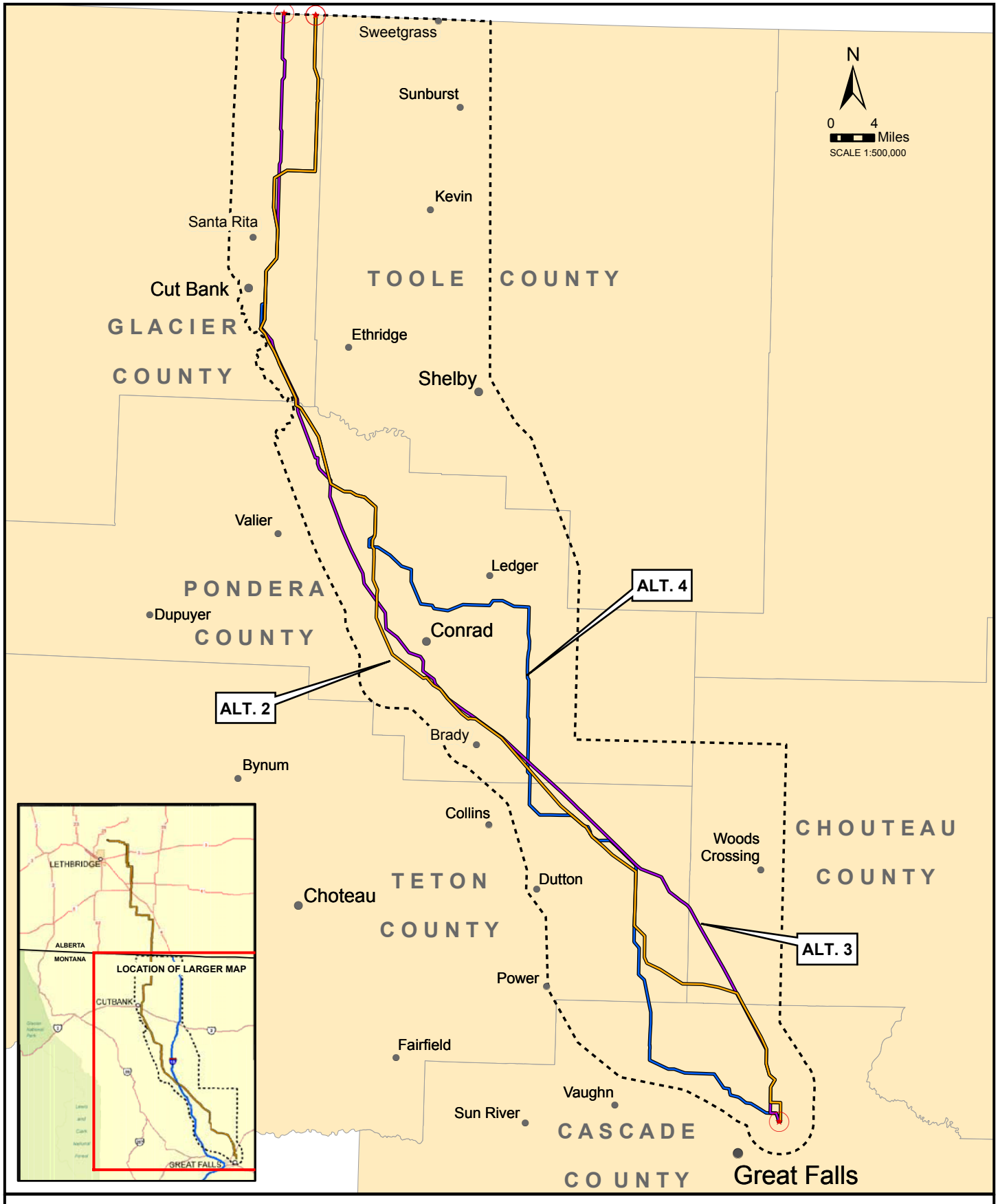


FIGURE 1.1-1
PROJECT STUDY AREA

LEGEND

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig1_1-1_MATL_Project_Study_Area_020107_JA.mxd

DEQ initiated its process by publishing notice in Montana newspapers that an application for the MATL project had been received and started the public scoping process. The notice ran in five newspapers for two weeks. In addition a press release alerted other media of the proposal and meetings. In June 2006 another notice of a scoping meeting ran in four area newspapers after MATL revised its proposed alignment north of Cut Bank.

On November 18, 2005, DOE published in the *Federal Register* (70 FR 69962) a Notice of Intent to Prepare an EA and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement. That notice opened a 45-day scoping period during which the public was invited to participate in the identification of potential environmental impacts that may result from construction of the MATL transmission line project and reasonable alternatives. Scoping meetings were held in the project area as described in Section 1.5.1.

In March 2007, the DEQ and DOE published a draft document that was both the DEQ Draft EIS and the DOE EA. The document was distributed for public comment and three public hearings were conducted to receive comments on the document during a 55-day public comment period. Based on comments received on the March 2007 document relating to land use and potential effects on farming, DOE determined an EIS to be the appropriate NEPA compliance document. Accordingly, on June 7, 2007, DOE published in the *Federal Register* (72 FR 31569) a Notice of Intent to Prepare an EIS and to Conduct Scoping. On July 27, 2007, MATL submitted to the U.S. Bureau of Land Management (BLM) an Application for Transportation and Utility Systems and Facilities on Federal Land. On September 6, 2007, DOE invited BLM to participate as a cooperating agency in the preparation of the EIS. DOE requested BLM's involvement to address BLM's authority to approve MATL's request for a special use permit and the proposal's relationship to relevant BLM land use plans. On October 12, 2007, BLM informed DOE of its intent to be a cooperating agency in the preparation of this EIS.

Comments received on the March 2007 document indicated additional analysis was needed to describe the costs of farming around the proposed structures and to compare these costs to the additional costs associated with alternative locations for the line. In addition substantial changes to state tax law took place in Montana's April 2007 special legislative session that changed the analysis of socioeconomic impacts. These issues were addressed further in a document published in February 2008, which was both a Federal Draft EIS and a State of Montana Supplemental Draft EIS (the Draft EIS). The agencies distributed the document for public comment, initiating a 45-day public comment period. During that time, the agencies held three public hearings allowing the public to submit their comments and also accepted written comments from the public. The agencies reviewed all the comments they received and prepared this Final EIS. The EIS also incorporates changes to MATL's application for the proposed Project and other updated information and analysis.

General DOE Requirements

The Department of Energy has the responsibility for implementing Executive Order (E.O.) 10485 (September 9, 1953), as amended by E.O. 12038 (February 7, 1978), which requires the issuance of a Presidential permit for the construction, operation, maintenance, and connection of electric transmission facilities at the United States international border. DOE may issue the permit if it determines that the project is in the public interest, and after obtaining favorable recommendations from the U.S. Departments of State and Defense. In determining if a proposed Project is consistent with the public interest, DOE considers:

1. Potential environmental impacts in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality and DOE implementing regulations at 40 CFR 1500-1508 and 10 CFR 1021, respectively;
2. The proposed Project's impact on electric reliability, that is whether the proposed Project would adversely affect the operation of the U.S. electric power supply system under normal and contingency conditions; and
3. Any other factors that DOE may consider relevant to the public interest.

General NEPA/MEPA and MFSA Requirements

MEPA requires that decision makers consider the effects of their actions on the environment, and that state agencies inform the public of the decision making process and allow participation in the process. Similarly, NEPA requires that Federal decision makers be fully informed of the potential environmental consequences of their actions and document the reasons for their decisions. If DEQ and DOE determine that issuing a certificate or granting a Presidential permit would be in the public interest, the information contained in this document would provide a basis upon which those decisions are made. DEQ and DOE would consider this information in deciding which alternative(s) could be implemented and which mitigation measures, if any, would be appropriate for inclusion as a condition of the certificate or permit. The agencies will document their decisions.

MFSA requires a certificate of compliance for development of this electric transmission line. The purposes are to: (1) ensure the protection of the state's environmental resources; (2) ensure the consideration of socioeconomic impacts; (3) provide citizens with an opportunity to participate in facility siting decisions; and (4) establish a coordinated and efficient method for the processing of all authorizations required for regulated facilities (DEQ 2006). A summary of how the Project and alternatives would address each MFSA-required finding, including probable impacts, is provided in Section 3.18.

Under MFSA, the Montana Departments of Transportation (MDT), Natural Resources and Conservation (DNRC), Fish, Wildlife and Parks (FWP), and Revenue (DOR), and the Montana Public Service Commission (MPSC) are required to report to DEQ information related to the impact of the proposed site on each agency's area of expertise. The report may include opinions on the advisability of granting, denying, or modifying the certificate (75-20-216[6], MCA).

Organization of the EIS

This EIS is presented in 2 volumes: Volume 1 is the main text of the Environmental Impact Statement and Appendices; Volume 2 contains the responses to public comments on the Draft EIS. Because of their length, the appendices are not printed as part of Volume 1, but are provided on the accompanying compact disk (CD).

Volume 1, Chapter 1 includes a description of the project, purpose, benefit, and need for the project, relevant agency permitting actions, public participation, issues of concern, and other background information. Chapter 2 of this EIS contains the descriptions of MATL's proposed Project and the alternatives to the Project, along with alternatives considered but dismissed. Chapter 3 presents the affected environment and impacts analysis. Chapter 3 also includes information pertaining to the findings that DEQ is required to make under MFSA (Final findings will be made in its certificate decision). Cumulative impacts, unavoidable adverse impacts, and irreversible and irretrievable impacts are in Chapter 4. Consultation and coordination with other agencies and interested groups is in Chapter 5. The list of people who prepared this document is in Chapter 6. Chapter 7 presents a glossary and acronym list. References are in Chapter 8. Chapter 9 contains a list of the persons to whom the EIS was distributed.

Fifteen appendices (Appendix A through Q) that were included in earlier documents are included in this Final EIS, but provided only in electronic format on the accompanying CD. Three have been revised as follows:

Appendix F — Revised Draft DEQ Environmental Specifications
Appendix M — Interconnection Information and Agreement
Appendix N – Farm Cost Review for MATL Project (2007 and 2008 Costs)

Appendices P and Q have been added:

Appendix P – Endangered Species Act Section 7, State Historic Preservation Officer, and Tribal Consultation
Appendix Q – Contractor's Disclosure Statement

Volume 2 contains comments on the Draft EIS, and agency responses to those comments.

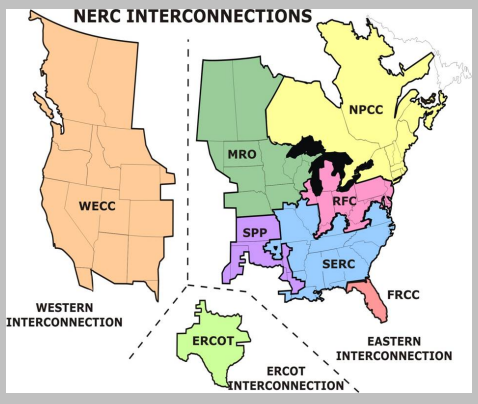
The CD that accompanies this EIS includes the March 2007 document, the volume (Volume 2) of the February 2008 DEIS that provided responses to comments received on the March 2007 document, and Volumes 1 and 2 of this Final EIS, including all 17 appendices.

1.1 Project Background

In North America, electricity moves from power generating facilities to customers using a transmission system. The North American Electric Reliability Corporation (NERC) is responsible for improving the reliability and security of the electric power system in North America. NERC works with eight Regional Reliability Councils to improve the reliability of the bulk power system. The members of the regional councils come from all segments of the electric industry: investor-owned utilities, Federal power agencies, rural electric cooperatives, state, municipal and provincial utilities, independent power producers, power marketers, and end-use customers (NERC 2006). These entities account for virtually all the electricity supplied and used in the U.S., Canada, and a portion of Baja California, Mexico (**Figure 1.1-2**). Montana is located primarily within the Western Grid (see text box) under the direction of the Western Electricity Coordinating Council (WECC), one of the eight regional councils.

By design, the Western Grid system is weakly tied to the eastern portion of the North American Grid. There is currently no direct high voltage power transmission connection between Alberta and Montana (**Figure 1.1-2**).

While the power system in North America is commonly referred to as "the grid," there are actually three distinct power grids or "interconnections." The Eastern Interconnection includes the eastern two-thirds of the continental United States and Canada from Saskatchewan east to the Maritime Provinces. The Western Interconnection includes the western third of the continental U.S. (excluding Alaska), the Canadian provinces of Alberta and British Columbia, and a portion of Baja California Norte, Mexico. The third interconnection comprises most of the state of Texas. The three interconnections are electrically independent from each other except for a few small direct current ties that link them. Within each interconnection, electricity is produced the instant it is used, and flows over virtually all transmission lines from generators to loads.



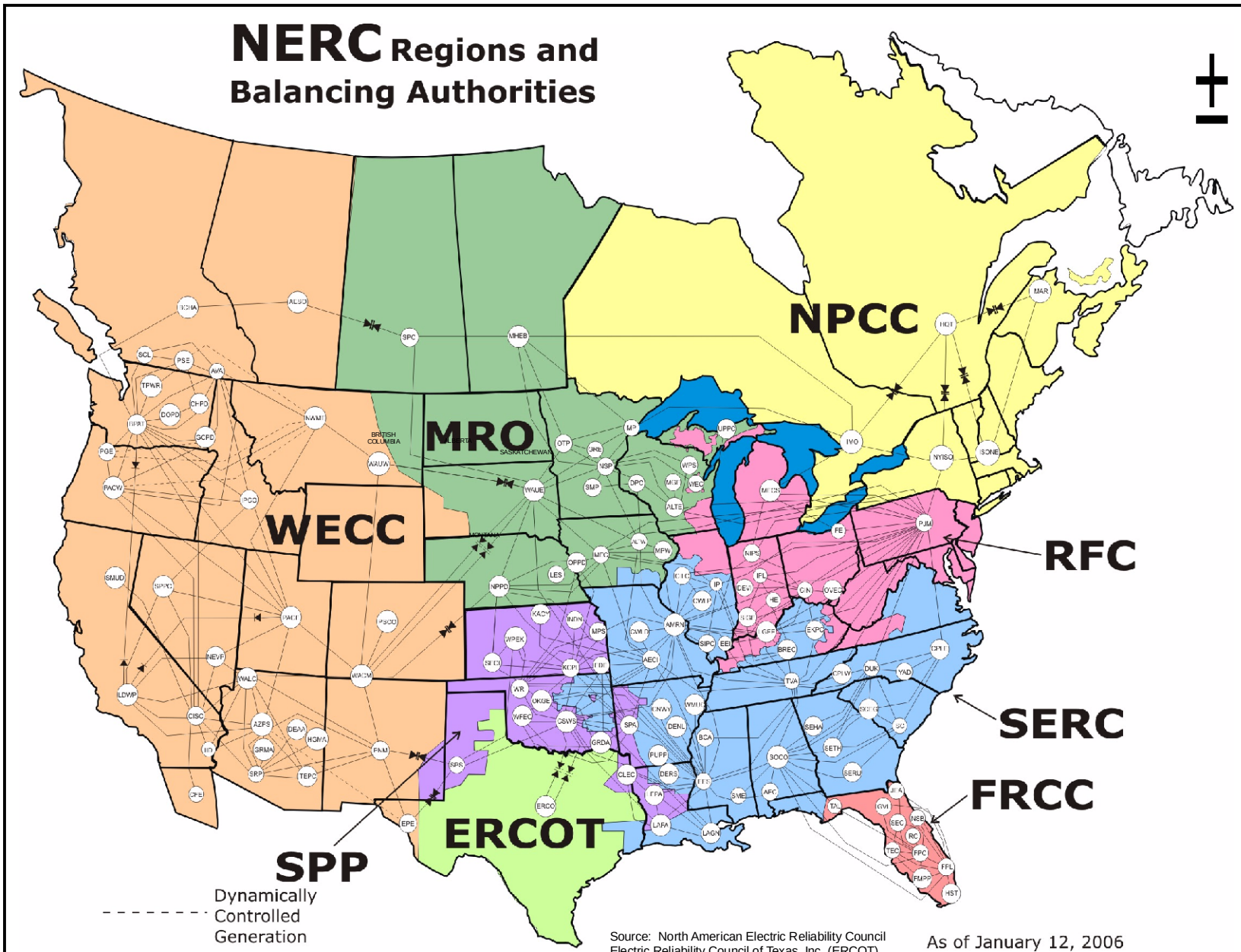


FIGURE 1.1-2
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL REGIONS AND BALANCING AUTHORITIES

GIS map by Ed Madej - TTEMI-HE
Fig1_1-2_MATL_NERC_Regions_020107_JA.mxd

To ensure reliable electrical transmission service, NERC authorizes "balancing authorities" in critical areas throughout the system that are responsible for maintaining load-interchange-generation balance within a balancing authority area. The WECC region contains 44 transmission operators and 35 balancing authorities (**Figure 1.1-2**). NWE and DOE's Western Area Power Administration (WAPA) are the two balancing authorities in Montana (NERC 2007). A description of the existing transmission system in Montana and Alberta, and how reliability could be affected by the Project is provided in Section 3.17.

1.2 Purpose, Benefit, and Need

This section describes the purpose and benefit of the proposed action as required under MEPA and MFSA (Section 1.2.1) and the need for the proposed action as required under MFSA. This section also addresses the purpose and need for the Federal action as required under NEPA (Section 1.2.4).

1.2.1 Purpose and Benefit to the State of Montana

The purpose for the proposed MATL transmission line is to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists), provide access to potential markets for new and existing power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources. Expected benefits of the proposed Project are summarized below and examined in detail in Section 3.13.

Benefits to Electricity Generators and Consumers in Montana

The proposed transmission line could transport 300 MW of power north and 300 MW south on a firm basis (guaranteed). Customers who have signed agreements with MATL to ship power on a firm basis are currently wind farm developers in Montana and are listed in **Table 4.1-2**. Although the electricity generated by these wind farms may be shipped over the MATL transmission line and the majority of the revenue earned by MATL may be from wind farm operators, the MATL transmission line and the potential wind farms are not connected actions. Potential wind farms along the MATL line are considered to be reasonably foreseeable future actions and are discussed as cumulative impacts in Chapter 4.

Due to constraints on the current electrical grid system where MATL would tie in at Great Falls, the full capacity of 300 MW to the south may not be realized at all times. The added electrical transmission capacity from the MATL line could support a modest increase in new power generation in Montana. When the firm capacity is not being

fully used by the contracted firm power generators, the line would be available for short-term, non-firm transfers of power from other generation sources. If the proposed transmission line is approved, MATL will have already sold the firm capacity of the line to four potential wind farms before construction begins. The known information regarding the four wind energy generation companies that have contracted with MATL is provided in Chapter 4.

Additional expected benefits to Montana generators and consumers include: additional connection with markets that demand energy from sustainable sources, such as electricity generated from wind power; additional wholesale electricity purchasing options for Montana utilities, which could result in lower rates due to an increase in supplier competition; and increased opportunities for western grid system optimization during high Montana export and low Alberta-BC export scenarios.

Benefits to Existing Transmission Systems

A modified transmission system, including a tie line between Montana and Alberta, may also result in benefits to transmission system operators whose service areas include Montana and to utilities that provide transmission service within the state. A modified transmission system could provide more options for power routing within Montana, increase energy transactions between Montana and Alberta, and allow for easier balancing of energy surpluses and shortages within and between balancing authority areas. Because tie lines are able to connect with adjacent electric systems, different generation resources can combine to provide a level of reliability that one jurisdiction could not otherwise afford if that jurisdiction had to cover the same resources independently. The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NWE, to obtain regulating reserves for its transmission system control area.

1.2.2 Benefits as Stated by the Applicant

The MATL transmission line is a merchant line the primary purpose of which is to financially benefit the owner/operators. The MATL application for certification described the following benefits to MATL, the U.S., and Canada (MATL 2006b):

> *The Project would be the United States' first power transmission interconnection with Alberta and is expected to facilitate development of additional sources of generation (e.g., wind farms both in northern Montana, and southern Alberta), and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the Project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.*

In addition, MATL asserts that system stability studies conducted under the direction of the WECC Peer Review Group indicate that the proposed Project would not adversely affect transmission system stability (Tonbridge Power, Inc. 2007). MATL and NorthWestern Corporation executed a Transmission Line Interconnection Agreement on December 20, 2007, that became effective on January 31, 2008. The cover and signature pages of this agreement are included in Appendix M.

1.2.3 Need for the Facility

The need for this line is the additional transfer capacity it would provide, if built. This line would directly connect Montana's and Alberta's regional operating transmission systems, and would allow power to flow directly between these two systems where there is no current connection.

Because Montana makes more electricity than it consumes, to be economically viable, any new generation resources in Montana will offer competitive pricing and have adequate transmission access to compete in out-of-state markets or replace an existing supplier choosing to take higher profits by selling out of state (DEQ 2004). Either way, additional transmission capacity is not needed to serve Montana customers, but it is essential for the viability of new generation enterprises (DEQ 2004).

The MATL transmission line could support a modest increase of new electricity generators, such as wind, in the study area by connecting them to regional grids and thus potentially to electricity markets. The MATL transmission line is proposed to be capable of shipping up to 300 MW north and 300 MW south. The amount of new generation that would be able to be shipped south into Montana by MATL is currently unknown due to potential transmission constraints south of Great Falls, which would be the southern terminus of the MATL transmission line. To the extent that southerly electrical flows on the MATL transmission line are constrained, this would reduce MATL's ability to meet the need for increased capacity. It also might result in more electricity flowing north from Montana into Alberta than from Alberta to Montana.

1.2.4 Purpose and Need for DOE and BLM Action

DOE will consider this EIS to determine whether to grant a Presidential permit to MATL for the construction, operation, maintenance, and connection of the proposed 230-kV transmission line that would cross the U.S.-Canada border. The purpose of DOE's action is to respond to MATL's request for a Presidential permit. BLM will use this EIS to determine whether granting an easement to MATL for the proposed transmission line would be compatible with its West HiLine Resource Management Plan.

1.3 Scope of this Document

The objective of this EIS is to evaluate the potential environmental impacts associated with the proposed actions of issuing a MFSA Certificate of Compliance, a DOE Presidential permit, and a BLM easement that would result in the construction and operation of the proposed MATL 230-kV transmission line (the Project); it evaluates the applicant's proposed route and two other action alternatives. This document also provides information pertaining to findings necessary for transmission line certification in accordance with MFSA (Section 3.18). The document also considers a "No Action" alternative, the impacts of not certificating or permitting the proposed facility, or amending the land use management plan. The alternatives are described in Chapter 2 along with several Local Routing Options. The description of the environment that would be affected by the proposed Project and alternatives and an analysis of impacts to human health and the environment are provided in Chapter 3. Resource areas that are discussed in detail in this document are: land use, geology and soils, engineering, hazardous materials, water, wetlands, vegetation, wildlife, fish, special status species, air quality, noise, transportation, human health and electromagnetic fields, socioeconomics, visuals, cultural resources, and the transmission grid.

This EIS analyzes only those project-related facilities constructed inside the United States. Neither the United States nor agencies of the State of Montana have jurisdiction over the regulation or permitting of facilities in Canada.

1.3.1 Alternatives Considered For Detailed Analysis

A discussion of how alternatives were developed, alternatives considered but dismissed from detailed analysis, and complete descriptions of the four alternatives considered for detailed analysis is provided in Chapter 2. A summary of the four alternatives is presented below.

Alternative 1 — No Action

Under Alternative 1, the proposed Project would not be approved by DEQ, DOE, or BLM and, consequently, would not be constructed. Existing electrical transmission service in north-central Montana would be maintained and operated at its current level. In addition, plans to construct new generation facilities in the analysis area would need to consider other transmission alternatives or not be built.

Alternative 2 — Proposed Action

Alternative 2 is to construct and operate a merchant transmission line between Great Falls, Montana and Lethbridge, Alberta, as described in MATL's application to DEQ (MATL 2006b), application to DOE for a Presidential permit, and application to the BLM for an easement. The Alternative 2 proposed alignment is 129.9 miles long (within Montana) and extends from the 230-kV Great Falls Switchyard north of Great Falls to a proposed new substation near Cut Bank, and extends north to the Montana-Canada border at the western edge of the Red Creek Oil Field. Monopole structures would be used on 56 miles of the line where it would cross cropland and Conservation Reserve Program (CRP) land diagonally. H-frame structures would be used for the remainder of this alternative.

Alternative 3 – MATL B

Alternative 3 would be 121.6 miles long and would be similar to Alternative 2 in that the width of the right-of-way, types of access roads, implementation, conductors, markers, substations, construction, operations, maintenance, and potential environmental protection measures would be the same as those described for Alternative 2. The Alternative 3 alignment would be different from Alternative 2 in that it would generally parallel an existing 115-kV transmission line along the entire route from the Great Falls Switchyard to a substation near Cut Bank and use only H-frame structures. Alternative 3 was developed by MATL in response to a single preferred location MFSA siting criterion that recommends paralleling existing utility corridors (Circular MFSA-2, section 3.1). This alternative alignment was not intended to address potential land use issues or maintenance issues.

Alternative 4 – Agency-Developed

Alternative 4 was developed by DEQ within MATL's study area to address concerns raised by the public and interested agencies during the scoping period. Issues of concern that helped shape Alternative 4 are: potential adverse impacts to farmers from diagonal crossings of farm fields using H-frame structures, limitations on private property use due to crossings on private land, and disturbance of visual resources. The alignment under Alternative 4 would be 139.6 miles long and would be generally constructed along field boundaries and where diagonal crossings would not impact farming practices or other private land use. Public land (both Federal- and state-owned) would be used when its use would be as economically practicable as the use of nearby private land. Alternative 4 would also include additional environmental protection measures recommended by DEQ and DOE, but not required under Alternatives 2 and 3. The use of monopoles would be required where the line would cross cropland and CRP land. The width of the right-of-way, project implementation, conductors, markers, substations, types of access roads, construction, operations, and maintenance would be the same as Alternatives 2 and 3.

1.3.2 The Agencies' Preferred Alternative

The preferred alternative consists of portions of Alternatives 2 and 4 as shown on **Figures 1.3-1, 1.3-2,** and **1.3-3** and described in detail in Section 2.7. It would begin at the Great Falls Switchyard and follow Alternative 4 for 27.3 miles. For that point to Milepost 103.1 it would primarily follow Alternative 2, but would include the Diamond Valley South, Teton River, Southeast of Conrad, Northwest of Conrad, Belgian Hill, Bullhead Coulee South, Bullhead Coulee North, and South of Cut Bank Local Routing Options. North of Milepost 103.1 the preferred alternative would coincide with Alternatives 2 and 4 to join with Canada's approved route at the border crossing. The preferred alternative would use monopoles wherever cropland and CRP lands would be crossed.

The DEQ selected the preferred alternative because it represents the best balance of state location criteria, including but not limited to impacts to farmland, cost, avoidance of houses, public acceptance, paralleling existing corridors, and use of public lands. DOE has also selected the described alternative as its preferred alternative.

1.3.3 Other Analyses Used In This Document

Portions of the EIS describing some of the potential impacts resulting from potential development of wind generation projects were summarized and updated from the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM 2005). This document assessed the environmental, social, and economic impacts associated with wind energy development on BLM-administered land. This analysis was used to evaluate cumulative impacts on the environment that would result from the incremental impact of an action alternative when added to other reasonably foreseeable future actions such as increased wind energy development projects.

N

0 4 Miles

50

45

40

35

30

25

20

15

10

5

0

15

87

200

Dutton

Power

Vaughn

Woods Crossing

Great Falls

FIGURE 1.3-1
AGENCIES' PREFERRED ALIGNMENT SOUTH

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig1_3-1_MATL_PREFERRED_Alignment_South_091108.mxd

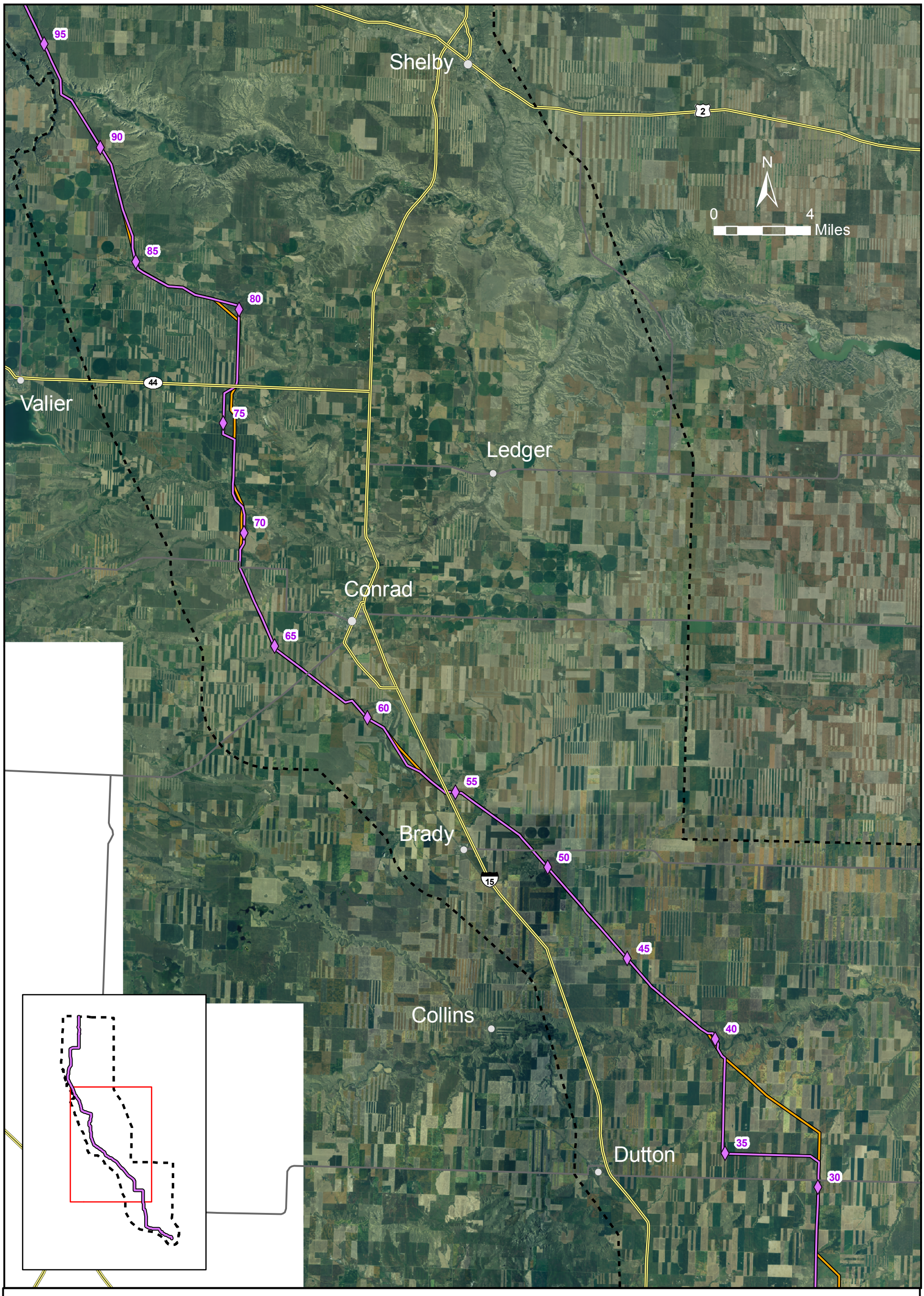


FIGURE 1.3-2
AGENCIES' PREFERRED ALIGNMENT
MIDDLE

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig1_3-2_MATL_MTEDQ_PREFERRED_Alignment_Middle_091108.mxd

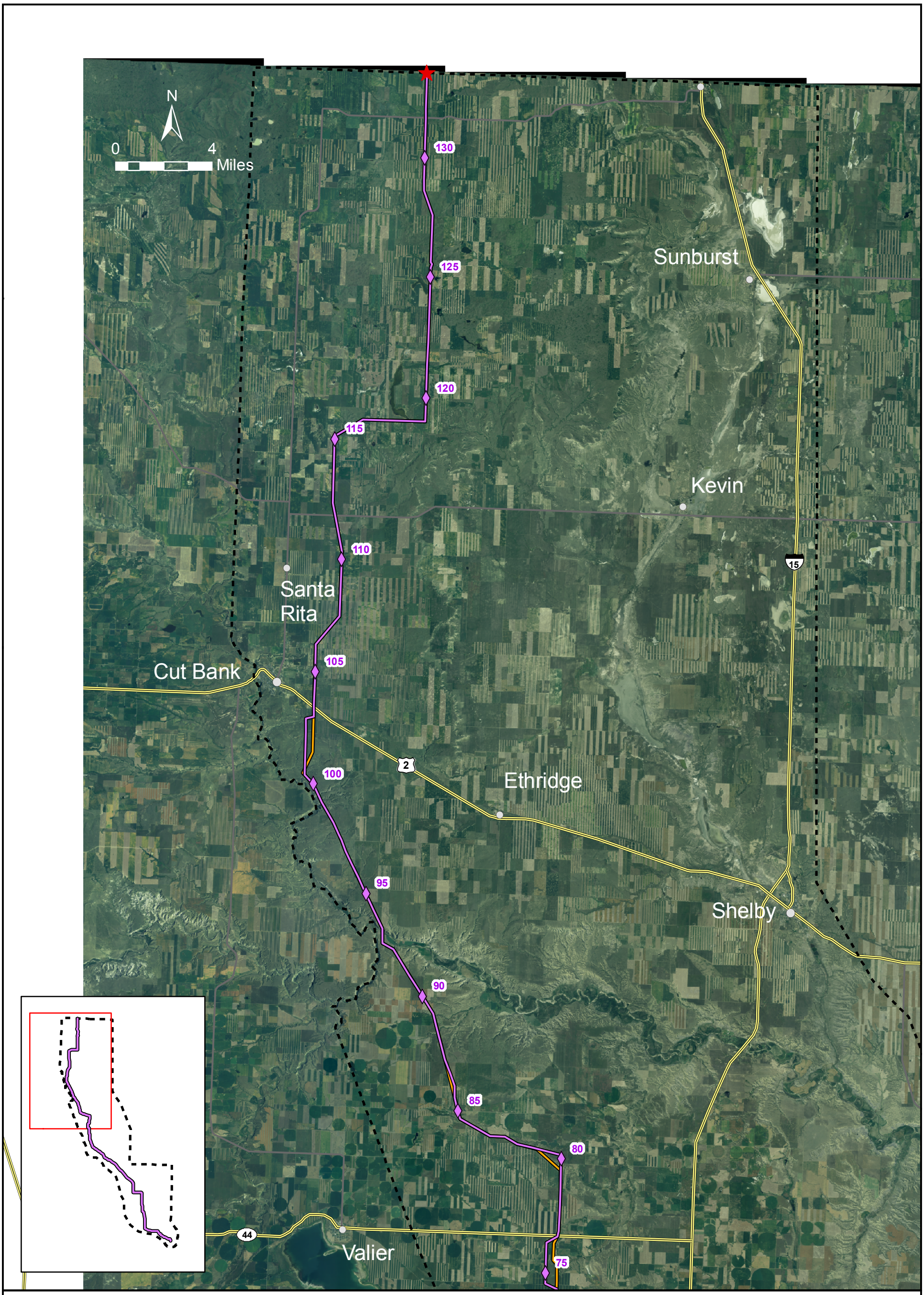


FIGURE 1.3-3
AGENCIES' PREFERRED ALIGNMENT
NORTH

LEGEND

- APPLICANT'S PROPOSED ALIGNMENT ALT 2
- AGENCIES' PREFERRED ALIGNMENT
- AGENCIES' MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig1_3-3_MATL_PREFERRED_Alignment_North_091108.mxd

1.4 Agency Permitting Actions and Authorities

Together, DEQ, DOE, and BLM are responsible for the preparation of this EIS. DEQ administers MFSA, MEPA, the Montana Hazardous Waste Act, the Montana Water Quality Act, and the Clean Air Act of Montana. After a certificate is issued, MFSA (75-20-401[1], MCA) would preempt all other state and local laws except those pertaining to air quality, water quality, worker health and safety, noxious weed control, and instances where the state has a property right such as on state-owned land.

The location of the proposed MATL transmission line will conform to applicable state and local laws and regulations, except where the DEQ may refuse to apply any local law or regulation if it finds that the law or regulation is unreasonably restrictive in view of existing technology, of factors of cost or economics, or of the needs of consumers, whether located inside or outside the directly affected government subdivisions.

In addition to DEQ, DOE, and BLM, other local, state, and Federal agencies have jurisdiction over certain aspects of MATL's proposed Project. **Table 1.4-1** provides a comprehensive listing of agencies and their respective permit/authorizing responsibilities with respect to the proposed Project.

The initial step in the Montana regulatory process is filing of an application for a certificate under MFSA pursuant to Title 75, Chapter 20, MCA. MATL submitted its MFSA application in December 2005. For DOE, the initial step was MATL's submission of its application for a Presidential permit on October 7, 2005 (70 FR 65891, November 1, 2005). For BLM, MATL must submit an application for Transportation and Utility Systems and Facilities on Federal Land prior to beginning construction of the transmission line.

Electricity Export Authorization

Exports of electricity from the United States to a foreign country are regulated by DOE pursuant to sections 301(b) and 402(f) of the Department of Energy Organization Act (42 U.S.C. 7151(b), 7172(f)) and require authorization under section 202(e) of the Federal Power Act (FPA) (16 U.S.C.824a(e)). However, in its application to DOE for a Presidential permit, MATL indicated that it intends to operate the proposed merchant transmission line as an "open access" transmission facility, as that term is defined by the U.S. Federal Energy Regulatory Commission, and that MATL would not export electric energy to Canada on its own account. Therefore, MATL does not intend to seek, nor does it require an electricity export authorization. However, any other entity exporting electricity to Canada using the MATL facilities, if authorized, would require an electricity export authorization issued by DOE.

TABLE 1.4-1
PERMITS AND OTHER REQUIREMENTS FOR THE PROJECT

Permit[a]	Agency	Description	Authority
STATE			
Certificate of Compliance	**Montana Department of Environmental Quality**	Reviews project application, conducts reviews of project impacts, approves and coordinates other permit activities, and monitors project to determine compliance with terms of certificate.	Montana Major Facility Siting Act
Section 401 Certification	**Montana Department of Environmental Quality**	Provides review of potential adverse water quality impacts from discharges associated with dredged or fill materials in wetlands and other Waters of the U.S.	Montana Water Quality Act
318 Authorization	**Montana Department of Environmental Quality**	Provides for a temporary narrative water quality standard for turbidity due to construction.	Montana Water Quality Act
Land Use License (DS-432)	**Montana Department of Natural Resources and Conservation**	Licensing structures and improvements on state lands and across navigable water bodies.	Title 77, MCA
Pre-construction Authorization	**Montana Department of Natural Resources and Conservation**	Authorizes construction prior to easement grant by the Board of Land Commissioners	85-2-402 and 85-2-407, MCA
Utility Crossing Consultation and Occupancy Permit	**Montana Department of Transportation**	Jurisdictional authority for issuing encroachment and occupancy permits; issuing approach permits; and review and approval of modification to Federal-aid eligible highways.	60-6-111, MCA; Title 75, Chap. 20, Sec. 103 and 401
FEDERAL			
Presidential Permit	**U.S. Department of Energy**	Issuance of a permit must be found to be consistent with the public interest and DOE must obtain concurrence of the Secretary of State and Secretary of Defense before permit can be issued.	Executive Orders 10485 and 12038
Section 404	**U.S. Army Corps of Engineers**	Controls discharge of dredged or fill materials in wetlands and other Waters of the U.S.	Section 404 of the Clean Water Act (33 CFR 323.1, 330)
Notice of Proposed Construction/ Alteration	**Federal Aviation Administration**	Structure location, height, lighting, and documentation relative to air traffic corridors.	14 CFR Part 77, Objects Affecting Navigable Airspace

TABLE 1.4-1
PERMITS AND OTHER REQUIREMENTS FOR THE PROJECT

Permit[a]	Agency	Description	Authority
Safety Plan	**Occupational Safety & Health Administration**	Provides guidance to on-site construction worker safety along with emergency contacts, hospital routes, etc.	29 CFR 1910
Tariff Review and Approval	**Federal Energy Regulatory Commission**	Approval of rates for transmission in interstate commerce for jurisdictional utilities, power marketers, power pools, power exchanges and independent system operators.	Title 18 CFR
Review Authority	**U.S. Department of Defense/U.S. Air Force**	Review of construction plans for power pole placement for potential disturbance of buried cables for Minuteman missile silos.	Consultation and concurrence
Consultation	**U.S. Department of Defense Homeland Security**	Presently required by U.S. security policy.	Consultation and concurrence
Utility Permit for Interstate Crossing	**U.S. Federal Highways Administration**	Review and approval of Montana Department of Transportation permit for transmission lines in the Interstate Highway System right-of-way.	23 CFR Part 645
Section 7 Consultation	**U.S. Fish and Wildlife Service**	Identifies any species and its habitat listed as endangered or threatened that may be impacted by the project.	Federal Endangered Species Act of 1973
A Biological Opinion or Concurrence with the Biological Assessment	**U.S. Fish and Wildlife Service**	USFWS must concur with the Biological Assessment or prepare a Biological Opinion.	Federal Endangered Species Act of 1973
Section 106 Consultation	**Advisory Council on Historic Preservation and Montana State Historic Preservation Office**	Consultation between project applicants and Federal agencies regarding impacts on cultural resources that are either listed or eligible for listing on the NRHP.	Section 110 and 106 of the National Historic Preservation Act
Rights of Way on Federal Land	**U.S. Bureau of Land Management**	Easement on Federal land crossed by the project.	Federal Land Policy Management Act Subchapter V
Compatibility Review	**U.S. Department of Agriculture, Farm Service Agency**	Facility siting on CRP contracted land requires a compatibility review to determine a facility's potential impact to the CRP status of the affected property.	Food Security Act of 1985

TABLE 1.4-1 PERMITS AND OTHER REQUIREMENTS FOR THE PROJECT			
Permit[a]	**Agency**	**Description**	**Authority**
LOCAL/COUNTY/OTHER			
Noxious Weed Management Plan	**County Weed Control Districts**	Provides containment, suppression, and eradication of noxious weeds.	Title 7, MCA
Easement Grants and Road Crossing Permits	**Boards of County Commissioners**	Consider issuance of right-of-way easement grants and road-crossing permits for county property and roadways.	County Commissioners
Line Rating	**Western Electricity Coordinating Council**	Three phases of line rating approval.	National Electricity Coordinating Council Energy Policy Act of 2005

Notes:

[a] Refers to permit, notice, review authority, certificate, license, consultation or law.
CFR Code of Federal Regulations
MCA Montana Code Annotated
USC United States Code

Eminent Domain

Eminent domain is the process by which the state can acquire private property for public use. The state is limited in that "just compensation to the full extent of the loss" will be paid to the property owner when exercising eminent domain (Montana Legislative Services 2005). Different property types and land uses have been identified by the legislature as appropriate public uses of eminent domain. Electrical energy lines are included as a public use under 70-30-10,(37), MCA. Before acquiring property through the use of eminent domain, the state will prove that public interest requires taking the property based on several criteria and then proceed through the legal process (Evans 2001). It is through eminent domain that states have the power to provide transportation corridors and other infrastructure needs for their citizens.

Any Presidential permit that DOE may issue would not convey any rights of eminent domain.

1.5 Public Participation and Issues of Concern

The scoping process is used to identify all issues relevant to the Project as proposed by the applicant and to develop alternatives to the proposed Project. Members of the public, the agencies, and the interdisciplinary EIS team all helped to define the issues for the scope of analysis. Information related to consultation and coordination among public and government entities can be found in Chapter 5.

1.5.1 Opportunities for Public and Agency Input

DOE issued a "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Montana Alberta Tie, Ltd." in the *Federal Register* on November 18, 2005 (70 FR 69962). In addition, DOE mailed a copy of the notice, using Montana land ownership records, to each owner of land on the MATL-proposed corridor.

DEQ and DOE hosted public meetings in December 2005. In addition, DEQ hosted a public meeting in June 2006 because MATL changed its proposed alignment north of Cut Bank. During the meetings, the public was asked to identify issues and concerns to be addressed during the review. During each meeting, MATL and DEQ representatives presented briefings. Maps and other information were available for review, and representatives from each agency were available to discuss the project, answer questions, and receive public comments.

Meeting dates and locations are listed below:

- Conrad on Monday, December 5, 2005, at Norley Hall,
- Great Falls on Tuesday, December 6, 2005, at the Great Falls Civic Center,
- Cut Bank on Wednesday, December 7, 2005, at the Glacier County Voting Center, and
- Cut Bank on Monday, June 26, 2006, at the Cut Bank Civic Center.

Additionally, throughout the scoping process, stakeholders expressed their concerns via letters, phone calls, and emails.

A Draft EIS/EA was released for public review in March 2007. Three public hearings were held to receive public comments:

- Conrad on Tuesday, March 27, 2007, at Norley Hall,
- Cut Bank on Wednesday, March 28, 2007, at the Glacier County Voting Center, and
- Great Falls on Thursday, March 29, 2007, at the Great Falls Civic Center.

On June 7, 2007, DOE published in the *Federal Register* (72 FR 31569) a Notice of Intent to Prepare an EIS and to Conduct Scoping and invited additional comments for a 30-day period.

Following publication and notice of availability of the Draft EIS in the *Federal Register* on February 15, 2008 (73 FR 8869), the agencies held a 45-day comment period that ended on March 31, 2008. During the comment period, the agencies hosted three public hearings allowing the public to submit oral and written comments. The agencies held public hearings in:

- Great Falls on Tuesday, March 11, 2008
- Cut Bank on Wednesday, March 12, 2008
- Conrad on Thursday, March 13, 2008.

The agencies also accepted written comments from the public throughout the comment period.

Other agencies having interest or responsibility in the project approval process include: FWP, Montana State Historic Preservation Office (SHPO), DNRC, MDT, DOR, MPSC, U.S. Department of Agriculture (USDA) Farm Service Agency, BLM, and U.S. Fish and Wildlife Service (FWS).

1.5.2 Issues of Concern

Based on comments received from participating agencies and the public before and after the issuance of the March 2007 document, ten issues and concerns were identified and are briefly described below.

(1) Impacts on farming, ranching, and other land uses:

Concerns were expressed regarding potential difficulties and hindrances of farming around the transmission line structures, potential for interference with Differential Global Positioning System (DGPS)-guided farm equipment, potential for noxious weed growth, interference with existing and future pivot or mechanical irrigation systems, and additional fencing needs. One commenter noted that when the original NWE 115-kV Great Falls to Cut Bank line was

constructed in the mid-1960s, farmers on the west side of the Golden Triangle expressed concern over the H-frame structures, especially the difficulty of farming around them. With cultivation toolbars and sprayers today ranging up to 120 feet in length, an additional diagonal transmission line presents obstacles to farmers. Requests were made for evaluation of a monopole line that follows (where possible) existing roads, property or section lines, or field boundaries. Realignments of the proposed line could be made at turning points located on land historically used for grazing or placed in CRP. Some stakeholders commented that the proposed line should connect to the WAPA 230-kV line at Shelby, negating the need for a new line that would cross diagonally through cropland all the way to Great Falls.

(2) Impacts on protected, threatened, endangered, and sensitive animal and plant species and their critical habitats:

Concerns were expressed about increased perch opportunities for birds of prey and resulting effects on sharp-tailed grouse populations and special status wildlife. There was concern over disturbance of rare plant species that may occur within the project area. Concerns were also expressed regarding interference with migratory and feeding flight paths of waterfowl, bird strike, and potential impacts on critical wildlife habitats.

(3) Impacts on floodplains and wetlands:

Concerns were expressed about the size and degree of impacts on known and delineated floodplains, wetlands, waters of the U.S., and other special aquatic sites.

(4) Avian mortality:

Concerns were expressed regarding bird mortality and suggestions were made for the use of bird strike mitigation practices currently implemented at the FWS Benton Lake National Wildlife Refuge and other applicable sites in the northern Great Plains.

(5) Impacts on cultural and historic resources:

Concerns were expressed regarding potential disturbance of Native American settlements and religious sites in the alignments.

(6) Impacts on human health and safety:

Concerns were expressed regarding specific voltage and current specifications, minimum ground clearance of the line, corona effects (including audible noise and radio and television interference), and other electromagnetic field effects from the operation of the 230-kV transmission line on human health and safety.

(7) Impacts on air, soil, and water:

Concerns were expressed regarding highly erodible soils, such as soil erosion and resultant sedimentation to surface water; mass movement and unstable geologic materials and soils; reclamation constraints; and potential increased soil erosion and impacts on existing air quality.

(8) Visual impacts:

Concerns were expressed regarding visual impacts to homes, historic homesteads, and tribal landscapes.

(9) Socioeconomic impacts:

Concerns were expressed regarding potential impacts to taxes and disturbance of residential property in Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties from the construction and operation of the line. Farmers expressed concerns regarding socioeconomic impacts associated with the costs of farming around transmission structures.

(10) Impact from development of wind generation projects:

Concerns were expressed regarding the potential wind energy and other electrical generation development, or limitations of that development that may be associated with the new Montana Alberta Tie 230-kV Transmission Line as "reasonable and foreseeable" development.

During the 45-day comment period following publication of the Draft EIS in February 2008, 352 individuals and organizations submitted comments in it, either orally at public hearings or in writing. Based on comments received, the agencies identified the following topics as common themes or major issues and concerns:

- Avian and Wildlife Issues, including the quality of field surveys for wildlife, potential impacts on bird and wildlife habitat, potential impacts of birds from collisions with the transmission line, effects on flyways, and impacts of potential wind farms;
- Economic Issues, including the distribution of benefits and costs of the line and the line's effect on the cost of electric power;
- Farming Issues, including the issues farmers would face in having to farm around structures and how they would be compensated for their costs and inconvenience;
- Legal and Regulatory Issues related to NEPA, MEPA, Montana's MFSA, eminent domain, and other State and Federal requirements;

- Line Capacity Issues, including possible future increases in capacity and the ability of power to be shipeed past the termination points of the MATL line;
- Line Issues, including its location, types of support structures, easement width, and the need for substations;
- Safety Issues related to clearance under the proposed transmission line and the safety of farming activities under and around the line;
- Socioeconomic Issues, including the expected impacts of the proposed Project and potential wind farms on local school enrollment, wages, and property tax revenues;
- Soils Issues, including concerns about potential compaction and erosion due to transmission line construction;
- Tax Issues. Including questions about the taxation status of the proposed transmission line and affected farmland;
- Vegetation, Wetland and Weed Issues, including the potential for disturbance of wetlands and riparian areas, the potential for introduction of weeds, and the impacts of weed control;
- Visual Issues, including the effects of the transmission line and potential wind farms on views in and near Glacier National Park and the Rocky Mountain front;
- Wind Farm Issues, including potential impacts of bird and bat collisions, the effects of wind farms on views, and the potential for mitigation of wind farm impacts.

These issues are discussed in the Consolidated Responses section of Volume 2.

1.6 Definition of Terms

All technical terms, regulatory language and acronyms used in this document are defined in Chapter 7. Terms that are used to identify an area of study and common electrical power transmission units are defined as follows:

- The **facility location,** also referred to as the **alignment,** is the 500-foot-wide swath encompassing each alternative. It is defined as 250 feet on either side from a reference centerline; however, unless otherwise stated, a pole may be placed anywhere within the alignment. The alignments for the proposed Project and alternatives are shown in maps.
- The **study area** is a 2,260-square-mile area that includes the proposed and alternative alignments and areas where roads may be built or improved. The study area was defined by MATL in its MFSA application to DEQ.
- The **safety zone** coincides with the 105-foot-wide right-of-way centered on the transmission line within the alignment for each alternative.
- The **analysis area** is the area evaluated for each resource. Different resources have different analysis areas. For some resources, the analysis area includes the area directly affected. On the other hand, because impacts to water resources can be realized downstream from ground disturbance, the analysis area for water resources is the entire study area.
- If an alternative is selected and the line permitted, MATL proposes to negotiate a 105-foot-wide **right-of-way** with each landowner. It would fall within one of the alternative alignments evaluated in the environmental analysis.
- **Megawatt** (MW) is a unit used to measure the amount of electrical power transmitted through a transmission line. One megawatt equals 1,000,000 watts.
- **Kilovolt** (kV) is a unit used to measure the voltage at which a transmission line is operated. One kilovolt equals 1,000 volts.

2.0 Description of Alternatives

2.1 Development of Alternatives

This environmental analysis evaluates the proposed MATL 230-kV transmission line (the Project) and three alternatives and several Local Routing Options to the Project. MFSA requires DEQ to find that the facility as proposed, or as modified, minimizes adverse environmental impacts, considering the state of available technology and the nature and economics of the alternatives. NEPA and MEPA require DOE and DEQ to evaluate the proposed Project, reasonable alternatives to the proposed Project that would fulfill its purpose and need, and the No Action alternative.

The No Action alternative reflects the status quo and serves as a benchmark against which the Project and other alternative actions can be evaluated. The No Action alternative is Alternative 1. The proposed Action is Alternative 2. Alternatives 3 and 4 describe two additional alignments that were developed based on comments and issues raised during the scoping process. In addition, 11 possible Local Routing Options were developed that could be included in the proposed Project (Alternative 2). These Local Routing Options were based on landowner or MATL input and comments on the March 2007 document and are discussed in Section 2.6. Four minor variations to Local Routing Options and a slight variation to Alternative 2 were identified since publication of the Draft EIS. These minor variations were evaluated in response to specific concerns brought to the agencies' attention by affected landowners and MATL. Alternatives that were eliminated from further study are discussed in Section 2.7.

Development of Alternatives

The development of alternatives was based on scoping comments, baseline information in the MATL MFSA application (MATL 2006b), technical analysis of the baseline information and issues, and mandates of the laws, rules, and regulations administered by the agencies. MATL developed three possible transmission line alignments for the MFSA application. This environmental review analyzes two of those MFSA alignments: MATL A - the proposed Project (Alternative 2), and MATL B - an alignment generally following the NWE 115-kV transmission line from Great Falls to Cut Bank (Alternative 3). The third alignment developed by MATL (MATL C) was not analyzed in detail because it did not address scoping comments as well as other alternatives.

Issue-Driven Modifications to the Proposed Project

Issues raised during scoping are summarized in Chapter 1. In response to concerns about diagonal crossings of farmed fields, land use and right-of-way issues, pole construction types and their relationship to land use issues, visual impacts, and wildlife,

the agencies began developing Alternative 4 by looking at eight local realignments to the alignment in Alternative 2. Local realignments could resolve site specific issues.

The local realignment segments are described in detail in **Appendix A**. Since some of the local realignment segments overlapped, DEQ and DOE met to compare potential effects and evaluate the tradeoffs among the local realignments. They selected five of the eight segments and combined them with portions of Alternative 2 to make Alternative 4. Alternatives and local realignment segments that were eliminated from further consideration are identified in **Section 2.7** and in **Appendix A**. These remaining segments represent a balance among resource impacts, MFSA criteria for approval listed in 75-20-301(1)(c) and (h), MCA, and the following location criteria for electric transmission lines listed in section 3.1.1 of Circular MFSA-2:

- Where there is the greatest potential for general local acceptance,
- Where the alignment uses or parallels existing utility and transportation corridors,
- In nonresidential areas,
- On rangeland rather than cropland,
- On non-irrigated or flood irrigated land rather than mechanically irrigated land,
- In geologically stable areas with non-erodible soils in flat or gently rolling terrain,
- In roaded areas where existing roads can be used for access to the facility during construction and maintenance,
- So that structures need not be located on a floodplain,
- Where the facility would create the least visual impact,
- At a safe distance from residences and other areas of human concentration, and
- In accordance with applicable local, state, or Federal management plans when public lands are crossed.

2.2 Alternative 1 — No Action

Under Alternative 1, the proposed Project would not be approved by DEQ, DOE or the BLM and, therefore, could not be built by MATL. Existing electrical transmission service in southern Alberta and north-central Montana would be maintained and operated at its current level. In addition, only limited wind development of wind generation resources along the proposed alignment in the Cut Bank area would occur due to limitations of the current transmission system. Selection of Alternative 1 would likely preclude the construction of the proposed facility in Canada as well.

2.3 Alternative 2 — Proposed Project (MATL A)[4]

Alternative 2 is the proposed Project. Alternative 2 is further defined by the alignment, right-of-way, pole design, access roads, construction and operation stages, and environmental protection measures included in MATL's application to DEQ (MATL 2006b as amended) and other commitments made to DEQ (Williams 2008a). MATL's commitments stated in its application would become part of DEQ's MFSA Certificate of Compliance unless otherwise conditioned by DEQ. The following description is based on MATL's application to DEQ. The study area for which MATL provided baseline information is shown on **Figure 1.1-1**.

Description of Alignment

The Alternative 2 alignment is 129.9 miles long and is shown in **Figure 2.3-1**. **Figure 2.3-2** shows the southern portion of the alignment in more detail, **Figure 2.3-3** shows the middle part, and **Figure 2.3-4** shows the northern part. The proposed alignment is dominated by agriculture (90.1 percent) interspersed with patches of non-farmland, mostly grasslands. Except for grazing land near the Marias and Teton rivers, and coulees and drainages, the alignment would cross mostly non-irrigated farmland.

The U.S. portion of the alignment would begin at the 230-kV Great Falls Switchyard north of Great Falls. For almost 2 miles the alignment would go directly north following an existing NWE transmission line. The alignment then would turn directly west for 1 mile using FWP land on the south side of the Great Falls Shooting Sports Complex (Complex), then north again, passing along the hills on FWP land on the west side of the Complex. The alignment would parallel the east side of Highway 87, cross the highway at milepost 5, and continue northwest along Black Horse Lake Flat (the south side of Black Horse Lake), then go north over dry cropland interspersed with some pasture through a low point in the bluffs above Black Horse Lake Flat. At milepost 8 the alignment would turn slightly to the west, diagonally traversing dry cropland east of Benton Lake National Wildlife Refuge. At milepost 14 the alignment would extend west for approximately 9 miles, turn north for about 2 miles, and then northwest for about 3 miles, crossing farmland and the following coulees (from south to north): headwaters of Huntley, unnamed (2), Timber, unnamed, Kinsey, and Hunt Coulee. From the Great Falls Switchyard to this point about 4 miles of State of Montana land would be crossed. The alignment would pass over the eastern end of Teton Ridge.

4 *The proposed Federal action is for DOE to issue a Presidential permit for the proposed transmission line described in MATL's Presidential permit application. In this EIS this action is defined as Alternative 2, the proposed Project. DOE would normally label this as the Proposed Action. However, because this document is both a Federal and State of Montana EIS, DOE will be adopting the nomenclature used by DEQ and refer to the Proposed Action as the "proposed Project."*

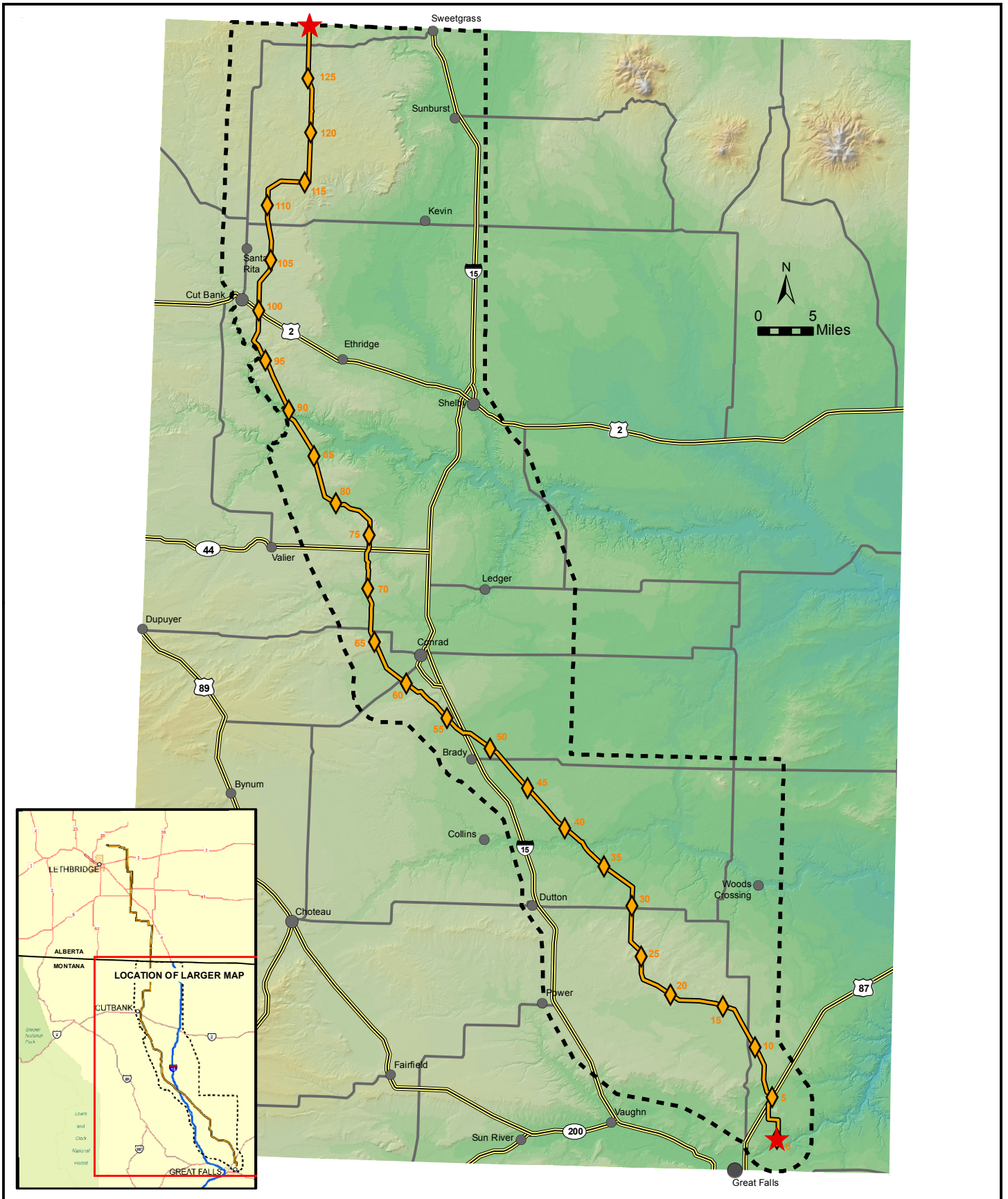


FIGURE 2.3-1
ALTERNATIVE 2 ALIGNMENT

LEGEND

- ALT2 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-1_MATL_ALT2_Alignment_All_111607.mxd

N

0 4 Miles

50
45
40
35
30
25
20
15
10
5
0

15
87
200

Dutton
Power
Vaughn
Woods Crossing
Great Falls

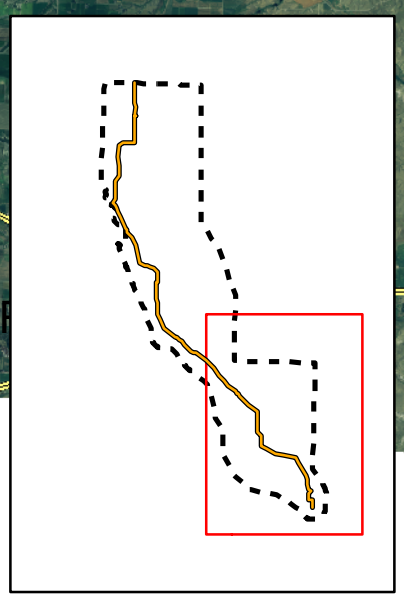


FIGURE 2.3-2
ALTERNATIVE 2 ALIGNMENT SOUTH

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-2_MATL_ALT2_Alignment_South_111907.mxd

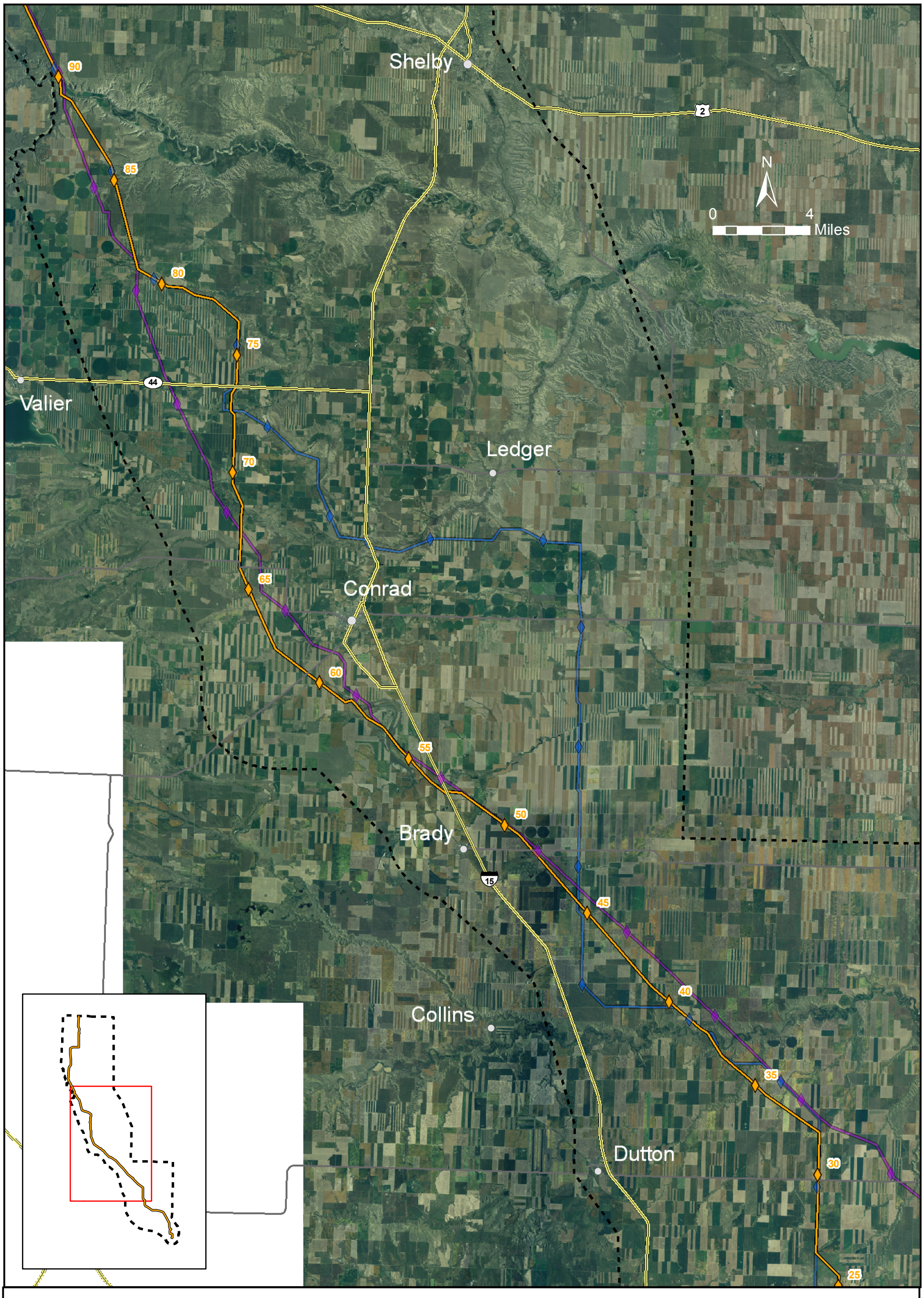


FIGURE 2.3-3
ALTERNATIVE 2 ALIGNMENT
MIDDLE

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-3_MATL_ALT2_Alignment_Middle_111907.mxd

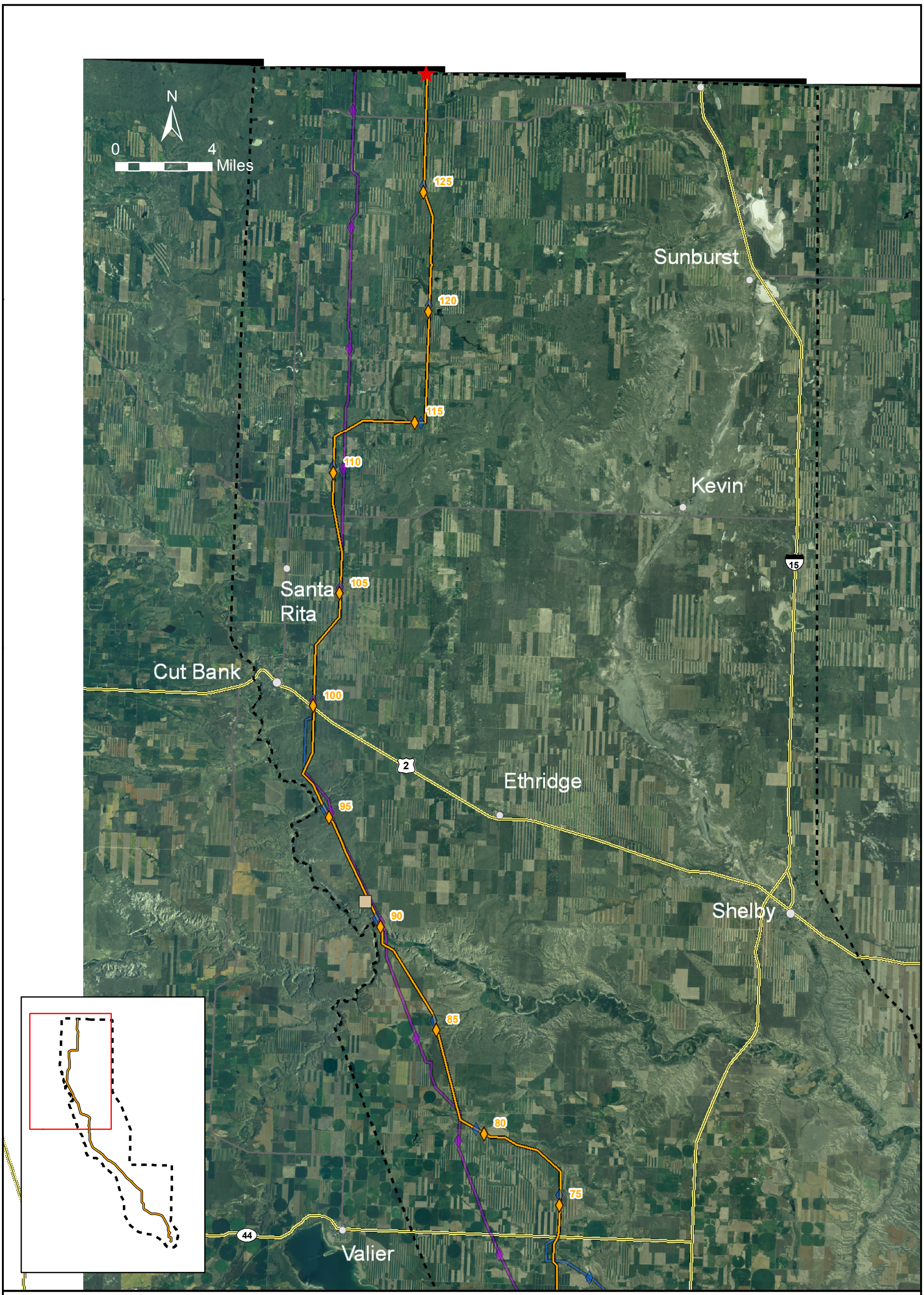


FIGURE 2.3-4
ALTERNATIVE 2 ALIGNMENT
NORTH

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- MARIAS SUBSTATION

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-4_MATL_ALT2_Alignment_North_111907.mxd

From the crossing of Hunt Coulee at approximately milepost 36, the alignment would traverse approximately 1 mile of cropland and rangeland to the Teton River.

The alignment would span the Teton River about 2.7 miles west of Kerr Bridge, on State of Montana land in a ¼-mile-wide gap in a riparian cottonwood stand avoiding an area of unstable slopes. From the river the alignment would go northwest and north across cultivated farmland until it intersects and crosses Interstate 15 about 2½ miles north of Brady about milepost 53. The alignment would continue northwest, crossing South Pondera Coulee and the Burlington Northern Santa Fe Railroad and Pondera Coulee, and continue northwest south of Conrad, passing approximately 3 miles west of Conrad.

At milepost 64 the alignment would turn generally north and would cross the eastern end of the Benton Bench. North of the Benton Bench the alignment would cross farmland to the Dry Fork of the Marias River. From milepost 69 north of the river the alignment would continue north about 12 miles over mostly cultivated farmland. From Belgian Hill along Highway 44 the line would go north to about the mid point of Trunk Butte. At milepost 77 the alignment would skirt the edge of farmland and pass through range and pasture land on the north side of Trunk Butte heading west-northwest toward Bullhead Creek. The alignment would follow the south side of Bullhead Creek until crossing the creek approximately 2 ½ miles east of Bullhead Lake. The alignment would traverse farmland and near milepost 81 head northwest. The alignment would cross Abbott Coulee about 2 ½ miles west of Willow Rounds and head northwest to the Marias River.

The alignment would cross the Marias River just west of the existing NWE 115-kV transmission line at milepost 90. The crossing would be approximately ½ mile east of the junction of the Two Medicine River and Cut Bank Creek on State of Montana and BLM land. North of the Marias River the alignment would extend approximately 8 miles northwest, running roughly parallel to Cut Bank Creek to a new Marias Substation south of Cut Bank. The exact location of this substation has not been determined. The alignment would turn north and cross Highway 2 at milepost 100 approximately 1½ miles east of Cut Bank crossing rangeland. From here north the alignment would cross cultivated farmland to cross Old Maids Coulee. North of Cut Bank, about 10½ miles, the alignment would turn east at milepost 112 for approximately 3 miles turning north near Hay Lake and passing the east side of Hay Lake. The alignment would continue north about 14½ miles from Hay Lake over mostly cultivated land to the Montana-Alberta border at a location that coincides with the proposed alignment in Canada. Along this stretch the alignment would pass the eastern edge of Grassy Lake near milepost 121. The border crossing would be at the western edge of the Red Creek Oil Field and would avoid existing oil and gas wells in this area.

Rights-of-Way

MATL proposes an operational right-of-way width of 105 feet for the proposed Project based on structure type, location, proven construction methods, and safety and operations zones. Transmission line easement requirements would depend on structure widths. The 105-foot-wide zone is to minimize the potential for encroachment and to ensure that if buildings are proposed near the line, the right-of-way width would be large enough to prevent them from encroaching near the line. The right-of-way width is based on safety considerations associated with line-to-ground clearances and access needs for line repairs and power line maintenance activities.

As discussed below under Transmission Line Structures, the Project would use a combination of H-frame structures with three-pole structures used at medium and heavy angles (**Appendix B**) and dead ends (**Glossary**) across cultivated ground at right angles as well as on range and pasture lands. Monopoles would be used on nearly all cultivated fields and fields enrolled in the CRP lands that are crossed diagonally (**Figure 2.3-5**). Where the line would turn a corner, angle-bracing guy wires would be used and additional easement space would be required (**Appendix B**).

MATL would coordinate with the Real Estate Management Bureau of DNRC's Trust Land Management Division for rights-of-way and easements across state owned school trust lands and navigable waterways administered by the state. MATL also would coordinate with the BLM Lands and Realty office to seek approval following a compatibility assessment with the BLM's West HiLine Resource Management Plan and completion of the NEPA review process. In addition to fee-owned public lands, areas covered by conservation easements including the FWS wetland easements and the Farm Service Agency's CRP would require that MATL seek compatibility reviews by these agencies on specific parcels to ensure compliance with the terms of the easements.

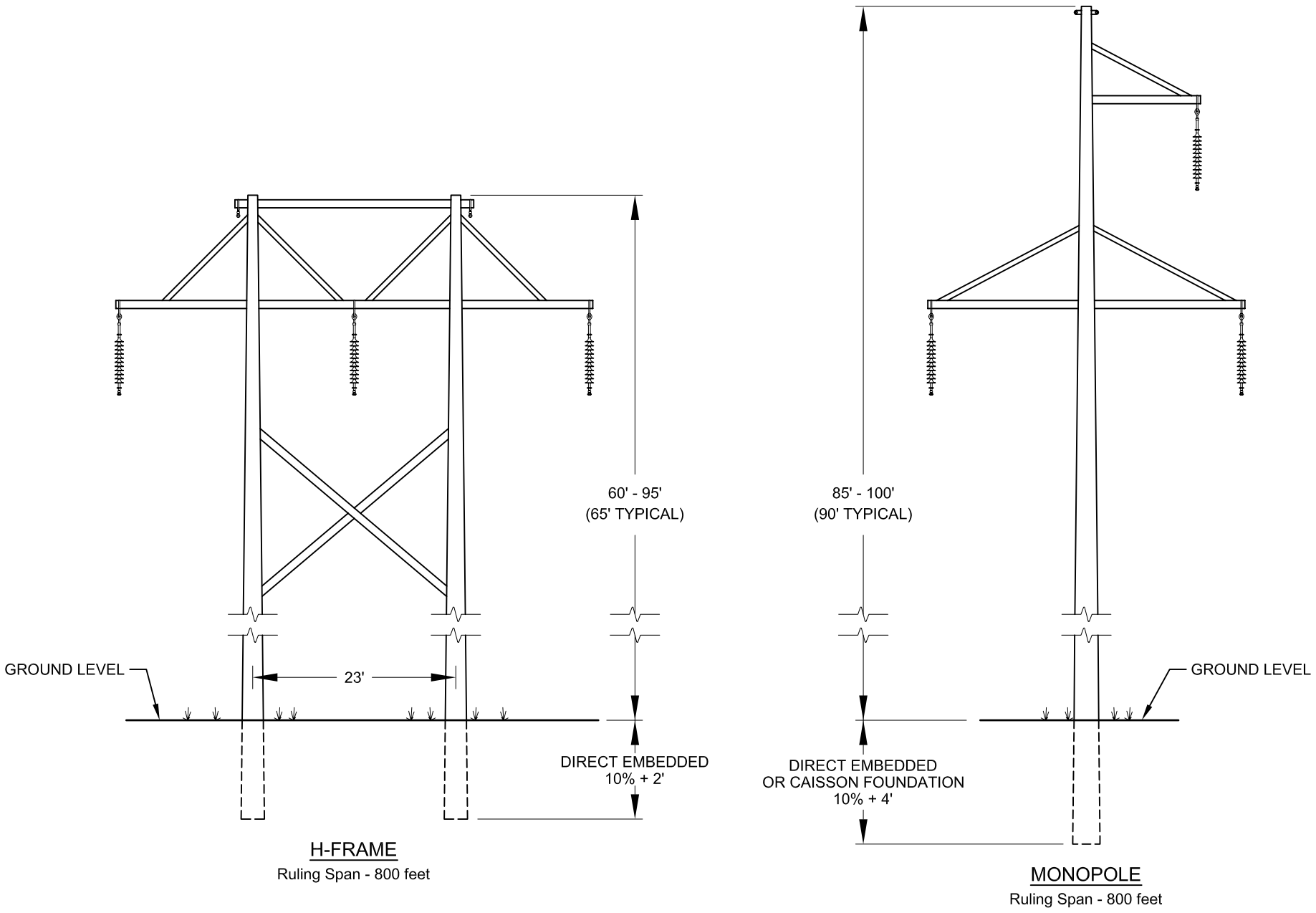


FIGURE 2.3-5
PROPOSED MATL POWERLINE
TYPICAL SUPPORT STRUCTURES

Figure 2.3-5_Typical Support Structures.dwg - DWH - 01/22/2008

Compensation to Landowners

MATL could acquire the necessary rights-of-way and easements to construct and operate the transmission line through negotiated agreements with landowners or through eminent domain. MATL would prefer to acquire rights-of-way by agreement and has committed to achieve mutual agreement before resorting to eminent domain. The eminent domain process is described in Chapter 1. MATL has proposed to implement an alternative dispute resolution process and provide compensation to landowners as described in the following excerpt from MATL's June 2008 MFSA application amendment.

> *Should DEQ approve the project, MATL has two options for acquiring the necessary rights-of-way and/or easements to construct and operate its transmission line. The first is through negotiated agreements with Landowners. The second is through the use of the power of eminent domain. MATL's position is that it is vastly preferable to acquire rights-of-way by agreement, and MATL will commit substantial efforts and resources to that end. In the end, eminent domain provides MATL with a clear path to acquiring the necessary rights-of-way, but MATL will make every reasonable effort to achieve an equitable solution by mutual agreement before resorting to that process.*
>
> *MATL is prepared to make several commitments regarding the efforts it will make to acquire rights-of-way by agreement before filing a complaint in eminent domain with respect to any particular parcel of land. In brief, and as described further below, MATL will offer greater opportunity for dialogue, greater routing flexibility (within the boundaries of the approved corridor), and different (and generally higher) levels of compensation in the context of a negotiated agreement than would be available in the context of an eminent domain proceeding.*
>
> *1. MATL will establish and utilize an alternative dispute resolution process prior to filing any complaint in condemnation.*
>
> *In order to reach agreement with Landowners, MATL believes it is necessary to engage the two parties in an appropriate process to clarify issues and help them work together to jointly resolve disputes. Accordingly, MATL commits that it will not initiate a condemnation proceeding with respect to a specific tract of land unless and until the involved Landowner has been provided an offer to participate in a Preliminary Alternative Dispute Resolution (ADR) meeting, as described below. This offer will be based on negotiation principles that are fair, consistent and uniformly applied to all Landowners.*
>
> *Where it is apparent that direct negotiations will not lead to an agreement between MATL and a Landowner, MATL will invite the Landowner to participate in a PADR meeting. A PADR meeting is a discussion facilitated by an independent 3rd party during which the parties attempt to reach an informed decision on the concerns that could be addressed through an ADR process and then select the appropriate resolution option(s) for those concerns. At this point, the Landowner may, by mutual agreement with MATL, choose to proceed with ADR to address some or all of those concerns.*

The PADR meeting can be a critical first stage to an effective mediation process, or any other form of Alternative Dispute Resolution (ADR), and can be used for any type of conflict and at any stage. The objective of the PADR meeting is to ensure that both parties clearly understand:

The issues to be resolved;
The impacts, needs and interests of both parties; and,
The alternative dispute resolution option for unresolved issues; which may include "interest-based" mediation and binding arbitration.

Other purposes of the PADR meeting include deciding on logistical matters such as: future meeting times; locations and contacts; the need, role, and use of advisors, lawyers and experts; the selection of mediators and arbitrators; and agreements on rules, timelines, and what important information needs to be exchanged. If, at the end of the PADR meeting, the two parties agree to continue into an ADR process, they would enter into a written agreement that codifies these matters and defines the steps going forward.

ADR is an additional option for the Landowner to resolve issues equitably. The PADR/ADR process has proven very effective in bringing parties together in agreement in similar projects in other jurisdictions. The process does not in any way displace or diminish any of the Landowner's or MATL's rights in law. All of the costs associated with the ADR process would be borne by MATL including all reasonable costs incurred by the Landowner.

2. In the context of negotiated agreements, MATL is prepared to provide mitigation measures and compensation components beyond those strictly required by law.

Through consultation with the Landowner and the application of a high standard of engineering, MATL will undertake reasonable best efforts to mitigate all demonstrable adverse affects of its transmission line on property and existing agricultural operations. Where the effect cannot be mitigated through reasonable engineering design and structure placement, the Landowner will be compensated so that, at a minimum, he or she suffers no financial loss. MATL operates under the assumption that mitigation through impact avoidance, proper design and structure placement is more desirable than compensation. Accordingly, greater effort and emphasis will be given to mitigation even when, on a comparative basis, mitigation may be somewhat more costly than compensation without mitigation.

MATL's negotiated compensation package generally will consist of three components:

a. Easement Payment:

- *Rationale: This component includes three possible elements that closely align with the components of compensation that may be available in an eminent domain proceeding. The first compensates the Landowner for the use of the land across which the right-of-way passes. While the Landowner will continue to have the right to farm or graze this land, except for that which is physically occupied by structures and guy wires, MATL purchases the right to traverse it with its facilities and the Landowner may not engage in activities that interfere with the construction, operation and maintenance of the transmission line. The second is compensation for any specific tracts of land that are isolated or somehow rendered uneconomic due to the presence of the transmission line. Finally, this component may in some instances include compensation for any demonstrable reduction in the value of the Landowner's remaining parcel due to the presence of the transmission line.*

- *Timing: This is a one-time payment, and the funds are paid when the Easement is recorded. Alternatively, the Landowner may opt for up to five annual installments.*

- *Amount: The payment will be no less than the current fair market value of the interest in the property acquired for the Right-of-Way.*

b. Annual Payment:

• Rationale: This payment is intended to compensate the Landowner for reasonable, direct, ongoing impacts to his farming and/or ranching operations that may result from the presence of the transmission line. In most instances, this impact involves the additional cost of farming around the poles or associated structures combined with the lost production from those areas in which the structures are located.

• Timing: These payments are made annually.

• Amount: Annual payments have not traditionally been made to landowners by power line owners in Montana (generally rural co-ops, public utilities, and the federal government). As there is no precedent in Montana for MATL to draw upon, MATL will establish payment levels based on common agricultural practice and standard cost data.

• Adjustment: Annual payments will be reviewed and adjusted, if necessary, every five years. If a dispute arises upon future review of the annual compensation as to the amount of adjustment that is merited, the Landowner will again be made the offer to take advantage of the ADR Process described in 1) above.

c. Reimbursement for Damage to Crops and Improvements:

• Rationale: This compensates the Landowner for any damage to his property, crops, soil, livestock, improvements, or possessions should that damage be caused by MATL or its contractors as a result of the initial construction, ongoing maintenance, operation, or decommissioning of the MATL transmission line.

• Timing: Compensation is paid immediately. In many cases, MATL will undertake the repair work itself at its own expense. Where repair is not possible, for example in the case of crop damage, the Landowner will be financially compensated in full. Where possible and mutually agreed, the Landowner will be paid to undertake the repairs himself.

• Amount: All compensation for damage is in full.

Additional to all of the above, MATL will compensate the Landowner for the temporary use of any land off the Right-of-Way required for a Temporary Construction Easement associated with the initial construction of the transmission facilities. Such a temporary easement will be subject to the obligation of MATL to reclaim and revegetate the disturbed land.

Project Design and Implementation

MATL would design, construct, operate, and maintain the proposed transmission system in accordance with the National Electrical Safety Code (NESC), U.S. Department of Labor Occupational Safety and Health Act (OSHA) Standards, and other guidance as appropriate for safety and protection of property. The following sections describe the system components, general construction methods, and operation of the proposed transmission line.

Transmission Line Structures

Laminated wood or wood pole H-frames would be the primary support structures used to cross range and pasture lands. MATL committed in replacement pages to its MFSA application (June 19, 2008) to use metal monopoles on approximately 56 miles of diagonal alignment that crosses cultivated and CRP land. Additional steel H-frame structures may be used for special applications such as where extraordinarily tall structures are required. **Figure 2.3-5** illustrates the typical H-frame and monopole structures. Design characteristics of the laminated or round wood-pole H-frame support structures and metal monopole structures are summarized in **Table 2.3-1.** MATL has not specified the exact locations where the monopole structures would be used.

MATL would use different types of H-Frame structures to address the various angles that would be necessary to accommodate changes in terrain and land use. These structures are shown in **Appendix B**. The proposed laminated or round wood-pole H-frame structures would incorporate 230-kV design standard synthetic insulators, hardware, and ground wires to provide nearly corona-free operation, as well as reduce audible noise and radio and television interference. On the typical suspension structure, three insulator strings would be hung from each structure. Each string would have 12 individual insulators.

On H-frame structures, one overhead galvanized steel ground wire, about 3/8-inch in diameter, would be installed on one side of the top of the structure for lightning protection. A second ground wire carrying a fiber optic cable for communications would be installed on the other side. On monopoles only the fiber optic ground wire would be used. At this time the fiber optic capacity of the line would only be used for MATL communications and those of MATL customers. MATL would also use the communication capacity to connect MATL facilities and those of NWE and the Alberta Electric System Operator. No plans have been made to use the excess fiber capacity for commercial purposes.

For the H-frame structures, holes would be augered into the ground to accommodate the new structures. New poles are typically set in the ground 10 percent of the pole's length plus 2 feet (that is, an 80-foot pole would be buried 10 feet). Spacing between two poles of a proposed 230-kV H-frame structure would be about 23 feet. Typical ruling span length would be about 800 feet, but could range from 500 feet to 1,600 feet. Approximately six to seven (average of 6.6) structures per mile would be required for an 800-foot ruling span. Depending on terrain and type of structure, total disturbance at each structure location during construction would be about 44 square feet for H-frame and 28 square feet for monopole. Pentachlorophenol would be used as a preservative to treat the wood pole structures.

TABLE 2.3-1
TYPICAL DESIGN CHARACTERISTICS [a]

Design Element	H-frame	Monopole
Alternative 2 Length in Montana	129.9 miles	
Length of H-frame or Monopole used in Montana	Approximately 74 miles	Approximately 56 miles
Right-of-Way Width	105 feet	Same as H-frame
Thermal Capacity for 230-kV line	625 MVA @ 212˚ Fahrenheit	Same as H-frame
Nominal Voltage	230,000 volts (230 kV)	Same as H-frame
Conductor Size	1590 kcmil Falcon	Same as H-frame
Conductor Type	ACSR	Same as H-frame
Overhead Ground Wire	3/8-inch-diameter galvanized, plus optical ground wire	Incorporated into optical ground wire (diameter of < 0.433 inches)
Electric field at edge of right-of-way	1.67 kV/m	1-conductor side: 1.02 kV/m 2-conductor side: 0.98 kV/m
Magnetic field at edge of right-of-way	70.57 mG	1-conductor side: 97.89 mG 2-conductor side: 83.88 mG
Electrostatic short-circuit current limit	5 mA	Same as H-frame
Structure Height Above Ground (approximate)	65 feet average	90 feet average
Length of Span (approximate)	800-foot ruling span	800-foot ruling span
Minimum Ground Clearance of Conductor	21.2 feet at 212°F (27.2 feet for cultivated and CRP land)	Same as H-frame
Typical Structure Base Dimensions	2 poles, 1 foot x 2 foot	1 pole, 30-36 inch radius
Total land temporarily disturbed for conductor reel and pole storage yards	15-20 acres	Same as H-frame
Area required for each structure base during operations[b]	44 square feet	28 square feet
Approximate Transmission Line Cost per mile (U.S. $) (August 2008 Rates)	$323,02 (Unguyed structure)	$359,429 (Unguyed structure)

Notes:

ACSR	aluminum core steel reinforced	Kcmil	1,000 circular mils
kV	kilovolts	kV/m	kilovolts per meter
mA	milliampere	mG	milligauss
MVA	megavolt-amperes		

[a] MATL's MFSA replacement pages, June 19, 2008 (Revision g) and U.S./Canadian Exchange Rate – August 8, 2008.

[b] Additional space may be required for angle structures.

For monopole structure installation, the holes would be 10 percent of the pole length plus 4 feet deep, but have a slightly larger diameter. After the pole is set in the hole, cement would be used, instead of soil, to backfill within approximately 1 foot of the soil surface. The salvaged topsoil material would be replaced on top of the cement and smoothed evenly around the pole. The excess soil from each hole would be evenly regraded around the structure, or hauled off site, depending on the landowner's preference. Additional design characteristics for the project are summarized in **Table 2.3-2**.

TABLE 2.3-2
ADDITIONAL DESIGN CHARACTERISTICS

Component Description	Alternative 2	Alternative 3	Alternative 4
Line Length in Montana (miles)	129.9	121.6	139.9
H-frame	507	803	337
Monopole	350	0	587
Pulling/tensioning sites (10,000 ft^2)	65	61	70
Staging areas (land temporarily disturbed for conductor reel and pole storage yards)	3 to 5 areas	3 to 5 areas	3 to 5 areas
Access road (14 feet wide)	3 miles	5 miles	7 miles
Road disturbance area (16.8 feet wide)[a]	6 acres	10 acres	14 acres

Notes:

NA = Not applicable

ft^2 = square feet

[a] Constructed access road estimates are based on minimal need in areas of steep terrain only. Construction disturbance for a road is assumed to be 20 percent greater than the actual roadbed area.

For construction near water bodies, no pole structures would be installed below the normal high-water mark or within a 100-year floodplain. MATL may use a helicopter for special locations such as major river crossings. If construction occurs during summer or fall months, it may be possible to use a boat to string the line across water bodies. If construction occurs during the winter months, clear-span bridges could be used when a stream is dry or frozen (MATL 2006b). Small watercourses could possibly be crossed if sufficiently frozen; where crossing isn't possible, other potential options include portable bridge placement or use of existing access roads. Construction across water bodies would be postponed if any excessive flows or flood conditions are present or anticipated. The use of a helicopter or boat would be the construction contractor's choice unless dictated to do otherwise.

Transmission Line Conductors

Electrical conductors provide the medium for flow of electrical energy. The proposed conductor configuration and size for H-frame and monopole support structures are shown in **Table 2.3-1**. The conductor consists of strands of reinforced steel cable encased by aluminum strands. The steel cable provides the tensile strength to support the conductor; the aluminum conducts most of the electrical current.

For safety reasons, where the transmission line crosses cultivated and CRP land, the height of the conductor for both types of support structures (H-frame and monopole) would be at least 7.2 feet above the highest currently-employed standard agricultural equipment (i.e., equipment 20 feet in height). Unless otherwise specified by the National Electrical Safety Code, the minimum conductor height on all other types of land would be 21.2 feet.

The electric and magnetic fields (EMF) are slightly different for H-frame and monopole structures due to the difference in configuration of the conductors (**Table 2.3-1** and **Figures 3.4-2** and **3.4-3**).



Bright Orange Disc Bird Flight Diverter

Markers and Warning Devices

In order to reduce bird collisions with the ground wire, MATL would install bird warning devices in high risk areas such as near Hay Lake, the Marias River, Dry Fork Marias River, and Teton River crossings, east of Benton Lake National Wildlife Refuge (NWR), and high ridge crossings such as the Benton Bench northwest of Conrad. For example, the "firefly" bird flapper/diverter would alert birds to the transmission line through light, motion, and reflectivity (Section 3.8). For daytime deterrence, this diverter uses highly reflective materials and fluorescent colors designed to be seen and avoided by birds.



Firefly Bird Flight Diverter Daytime

These markers glow in the dark for about 10 hours for night time deterrence. The "firefly" also rotates in 3- to 5-mile-per-hour wind conditions to increase visibility. MATL proposes to explore other technology and deploy it as needed for site-specific application.

MATL would comply with appropriate regulations of the Federal Aviation Administration (FAA). MATL would install FAA-recommended colored aerial markers for aviation safety and these markers would be installed at major pipeline crossings as determined by consultation with pipeline companies. These ball markers are up to 36 inches in diameter (though 20-inch markers are permitted on approaches to airports where the lines are within 50 feet of the ground) and are available in international orange, white, and yellow (installed with alternating colors). Reflective tape can be installed on the markers to increase their nighttime visibility for aircraft.

New and Upgraded Substations

MATL proposes to construct a new substation, the Marias Substation, approximately 10 miles south of Cut Bank at a location next to the site where NaturEner USA has begun building the Glacier Wind Power Project (formerly known as the McCormick Ranch wind park). The approximate location of the substation would be in the southeast quarter of Sec. 27 T32N R5W. The potential disturbance area has not been determined. The Marias Substation and the expanded 230-kV Great Falls Switchyard would be located in farmland or range/pasture land, not in a residential or subdivided area.

North of Great Falls, across the river from Giant Springs State Park, MATL is proposing to interconnect with the NWE 230-kV Great Falls Switchyard, requiring NWE to enlarge the switchyard to accommodate the MATL tie line and other proposed lines. MATL has provided a copy of an executed interconnection agreement with NWE to the agencies as an addendum to the application (Appendix M).

Access Roads

As a result of relatively flat topography and associated agricultural land uses that predominate in the Project study area, MATL anticipates only minimum development of access roads to construct, operate, and maintain the proposed Project. The majority of the Project right-of-way would be easily accessed from public roads, existing two-track roads, and farm fields. MATL does not anticipate maintenance of these access points with the exception of gate installations at key locations, if necessary. MATL proposes that disturbances resulting from access requirements would be reclaimed to conditions similar to what existed pre-project or to those conditions specified by landowners during easement-lease negotiations. Obstacles to travel along the right-of-way would potentially include:

- Slopes greater than 5 percent forcing the contractor to construct temporary access roads,
- Coulees or intermittent stream channels,
- Flowing streams and rivers, or wetlands,
- Areas with highly erodible soils,
- Areas providing habitat for sensitive wildlife or plant species,
- Pipelines, railroad tracks, irrigation ditches, or other linear features, and
- Heritage or archaeological sites.

The Marias and Teton River valley crossings might be challenging access because of rugged topography. Grading and recontouring might be required in these potentially difficult construction sites to gain access to reinforced structures that would support conductor spans of these valleys. MATL would reclaim these areas per DEQ requirements in coordination with landowners and appropriate agencies. MATL expects that other specific sites would be identified and addressed in subsequent reclamation plans as system design and associated access planning proceeds.

Construction

Construction is anticipated to take 4 to 6 months to complete. **Table 2.3-3** provides a summary of construction tasks and required resources and equipment. Transmission line construction tasks would include the following:

- *Pre-Construction*: Environmental permitting, cultural resource clearance, final transmission structure siting, engineering design, land procurement, various utility studies, and major procurement.
- *Surveying:* Initial line survey work would consist of survey control, alignment centerline location, and profile surveys. Access surveys would occur before construction. Light Detection and Ranging (LIDAR) would be used to provide much of this information. LIDAR is an airborne laser mapping technology that directly measures the shape of the earth's surface under the aircraft. LIDAR generates wide-area elevation information that can be used to make models showing details such as buildings, trees, and power lines.
- *Geotechnical Survey:* Investigations would be completed at selected key locations (for example, medium and heavy angle deflection points) to establish foundation requirements. Geotechnical measurements would also be obtained at a frequency of one location for every two miles of line when crossing problem soils. The geotechnical information is used to reduce problems during erection of the structures and assist with the cost estimate and bidding process for the project.
- *Access Planning and Preparation:* Crews would gain access from public roads as well as within the transmission line right-of-way for constructing, operating, and maintaining the line. When possible, access to the right-of-way would be by existing trails and roads. Trails are generally two-track routes and are not maintained. Because access for line construction would be truck travel within the right-of-way, graded surface access roads are not planned except at the Teton River crossing. Trails would be located at right angles to streams and washes. Existing roads and trails would be left in comparable or better condition than before construction. The right-of-way width is designed to minimize the potential for encroachment and to ensure that if buildings are proposed near the line, the right-of-way width would be large enough to prevent them from encroaching near the line.

  Gates would be installed where fences cross the right-of-way. Locks would be installed at landowner's request. Gates not in use would be closed but not locked unless requested by the landowner.

TABLE 2.3-3
SUMMARY OF CONSTRUCTION TASKS AND REQUIRED RESOURCES AND EQUIPMENT

Task	Crew Size	Typical Wage Level ($/hour)[a]	Equipment
Access Fencing/Reclamation	2	$15 to $18	¾ –ton post pounder
Framing	6	$17 to $20	Teleking 5-ton crane, Bobcat, 1-ton crewcab pickup
Setting	8	$17 to $20	330 Texoma digger, 35-ton setting crane, gravel truck, concrete truck, air compressor w/ tamper, Bobcat, (2) 1-ton crewcab pickups
Anchoring	3	$20 to $22	radial arm digger or retrofitted trench hoe
Material Handling	2	$17 to $20	(2) trucks
Pole Hauling	3	$20 to $22	pole truck, pickup
Stringing	31	$20 to $26	Tensioner, puller, 30-ton crane and pickup, soft line winder and pickup, cat pulling sock line and pickup, crane and pickup, flat deck and small crane, rider pole crew digger, pole truck

Notes:
[a]Wage levels extrapolated from "Montana Prevailing Wage Rates – Heavy Construction" Rates Effective March 10, 2006

- *Delivery and Assembly:* Framing crews would deliver poles, X-braces, cross-arms, insulators, and hardware to structure sites on flatbed trucks, and then assemble individual structures. For H-frame structure installation, poles would be set directly in holes that are 10 percent of the pole length, plus 2 feet deep. Crews would backfill the holes and compact the native soil material to prevent structure movement or settling. Any excess soil from each hole would be evenly regraded around the structure, or hauled off site, depending on the landowner's preference. For H-frame structures located in problem soils that are difficult to compact to the required density, gravel would be used to backfill around the poles. At heavy angled and dead-end structures, cast-in-place concrete footings would be installed. Crews would assemble structures and place hardware using man-lift trucks. Guy wires would be screwed into the ground using standard construction practices.

  For monopole structure installation, the holes would be 10 percent of the pole length plus 4 feet deep, but have a slightly larger diameter. After the pole is set in the hole, cement would be used, instead of soil, to backfill within approximately 1 foot of the soil surface. The salvaged topsoil material would be replaced on top of the cement. Any excess soil from each hole would be evenly regraded around the structure, or hauled off site, depending on the landowner's preference.

- *Conductor Installation:* After erecting all structures, conductor and ground wires would be installed. Large reels of conductor and overhead ground wire would be delivered to pre-selected pulling and tensioning sites (about every 2 miles) along the transmission line alignment. About 10,000 to 16,000 feet of conductor and overhead ground wire would be installed for each pull. Methods used to install conductor and overhead ground wire would include using a small line (p-line) attached to the conductor or ground wire to pull the cable through pulleys attached to the insulator strings. Once the conductor/ground wire is pulled the necessary length, it would be tightened. Adjustments made during tensioning would prevent the cable from sagging too much (due to ambient temperature and heating caused by flow of electricity) and would comply with the NESC.
- *Reclamation*: All disturbed areas associated with transmission line construction would be reclaimed. These efforts typically include gate repair as necessary, regrading and revegetation, and waste material removal.

MATL proposes to commence construction as soon as all property rights are obtained and all necessary authorizations are issued by DEQ, DOE and the BLM. However, MATL may not commence any construction activities unless and until it obtains all required permits.

Construction Staging Areas

Construction staging areas (sometimes referred to as "lay-down areas") would be located in previously disturbed areas, such as rail yards, siding areas, construction yards, and fallow lots, whenever possible. Some construction staging areas may be on undisturbed land when disturbed sites are not available. In general, construction staging areas would either be located in communities near the right-of-way where rail and truck service are available, or in rural areas where equipment could be unloaded from tractor-trailers. In all cases, construction staging areas would be on private land and would be subject to landowner negotiations and agreements. Construction staging areas would likely be located near Cut Bank, Valier, Conrad, Brady, Dutton, or Great Falls. MATL expects that staging areas would be established in three of these six locations, with each staging area occupying about 5 acres. However, a few smaller areas (about 2.5 acres) might be used.

Operations

NWE and Alberta Electric System Operator system dispatchers located at power control centers would direct normal line operations, using MATL's facilities to operate circuit breakers, determine the amount of power required to serve the loads and configure the power system accordingly. Dispatchers also would schedule the proper generation amount, and monitor the power system to ensure reliable service. Circuit breakers would operate automatically to ensure safe transmission line operation. Normal farming and other activities would be permitted on transmission line rights-of-way, if

these activities do not interfere with line operation and maintenance or create safety problems. Grid reliability is discussed in Section 3.17.

Maintenance

Maintenance programs would include routine aerial and ground patrols. Aerial patrols would be conducted annually and as needed to check for damage to conductors, insulators, or structures after severe wind, ice, wild fires, or lightning storms. Ground patrols generally would occur every 5 years to detect equipment in need of repair or replacement. When possible, ground patrols and subsequent repair activities would be scheduled to minimize crop and property damage. Noxious weed control plans would help guide herbicide treatments (see **Appendix C** MATL Noxious Weed Control Plan). Vegetation clearing may also be required in certain areas to minimize fire hazards.

For emergencies, crews would respond promptly to repair or replace damaged equipment. MATL would meet with respective landowners to arrange compensation for any damages incurred during emergency repair operations.

Environmental Protection Measures

MATL proposes project-specific environmental protection measures, shown in **Table 2.3-4,** that may be used to avoid or reduce the intensity and/or duration of the impacts to resources. In addition, MATL has committed that:

- Care will be taken to ensure that the MATL line will not conflict with any existing infrastructure such as, but not limited to: electrical distribution and transmission lines; telephone and other communication lines; gas and oil pipelines; irrigation infrastructure; and communication and other linear facilities owned by the Department of Defense.
- MATL has offered to build double circuit structures near Great Falls so that more wires can be added to the poles later.
- Should it be demonstrated that any GPS system is adversely affected by the MATL transmission line, MATL will make good any such negative impact at its own expense.

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
General			
Construction personnel would be instructed on the location and identification of sensitive resources within or adjacent to the Project right-of-way, as well as regulations pertaining to the protection of cultural and ecological resources.	Would help prevent damage to sensitive and/or protected resources.	Throughout Project area. Sensitive areas would be identified further during design phase.	Prior to construction
Erosion Control			
Erosion Control Plan identifying locations and specifications of measures to minimize erosion and sedimentation.	Re-establish vegetation and implement physical barriers to minimize soil movement on exposed slopes.	See MATL's draft Reclamation & Revegetation Plan in **Appendix D**. As the design phase continues, a SWPPP would be prepared as part of the MPDES permit.	Pre-construction
Construction contractor would implement erosion control measures (for example, water bars, drainage contours, straw bales, filter cloth, or similar). All off-site vegetative materials would be certified "weed free."	Implemented in areas with steep slopes to minimize soil movement.	See **Appendix D**. As the design phase continues, a SWPPP would be prepared as part of the MPDES permit.	During construction
Access			
Access would be limited to existing roads or two-track utility corridor, unless not feasible for transport of equipment/material.	Avoidance of new permanent vehicular access and long-term ground disturbance.	Potentially the Marias River and Teton River crossings may require some new access. This would be finalized and identified by milepost during design phase.	During construction
General engineering design plans would be developed for unforeseen temporary use areas.	Disturbance minimization and/or protection of natural resources.	Throughout Project area – This would be finalized and identified by milepost during design phase.	Pre- and during construction
All construction vehicle movement or temporary use areas outside the right-of-way would be coordinated with the authorizing agency and restricted to pre-designated access, contractor acquired access, or existing roads.	By limiting access to the Project area, unnecessary impacts to soils and vegetation would be avoided or minimized.	Throughout Project area – This would be finalized and identified by milepost during design phase.	During construction

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
At sites with soils that are sensitive to compaction, construction would be done with low bearing-pressure vehicles or compacted soil would be rehabilitated after construction by discing, plowing, or other means.	Weight limiting/distributing to reduce soil compaction and ground cover damage.	Croplands throughout Project area	During/post construction
Access road widening would be restricted unless essential for project implementation.	Minimizes damage to soils and vegetation.	Throughout Project area	During construction
Construction would be planned to avoid periods of intense farming (for example, grain harvest), as applicable.	Avoid impacting farming practices and implement crop damage compensation.	Croplands throughout Project area.	During construction
Fences, gates, and cattle guards would be repaired or replaced to their original condition if damaged during construction.	Replacement or repair as an effective resolution to property damage.	Cropland and range land as required throughout Project area.	Post-construction
MATL would work with the MDT in the design and construction of structures along or crossing any highway right-of-way.	Minimizes traffic disruption.	MDT maintained roads	Design and pre-construction
Existing roads would be properly maintained, and grading may be necessary.	Maintenance of proper drainage.	Throughout Project area	During and post construction
Access not required for operation/maintenance would be closed using the most effective method with landowner concurrence.	Prevention of permanent motorized vehicle use and resulting disturbance to soil/vegetation.	Throughout Project area	Post-construction
During project final design, structures and associated disturbances would be located to avoid or minimize impacts to known sensitive features such as water courses, residences, or cultural resource sites.	Avoid/minimize impact to sensitive features.	To be identified by milepost during final project design	Pre-construction
All construction vehicles would be restricted to the certificated construction right-of-way, associated facilities, and permitted access roads.	Avoid/minimize environmental impact	Throughout Project area	During construction

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
Surface Water, Wetlands, and Floodplains			
Locations for new structures would be selected to avoid 100-year floodplains and, where practicable, to avoid the need for construction activity within 100-year floodplains.	Avoidance would prevent potential disturbance within 100-year floodplains.	Marias River, Teton River, and Old Maids Coulee crossings	Pre-/during construction
MATL would prepare an erosion control plan, whereby measures, locations of measures, and specification for measures would be used to minimize erosion and sedimentation. As a part of this a SWPPP would be submitted to DEQ.	Effective erosion control planning to reduce erosion.	See **Appendix D**. As the design phase continues, a SWPPP would be prepared as part of the MPDES permit.	Pre-construction
Unavoidable wetland impacts would require permits from U.S. Army Corps of Engineers to comply with Section 404 of the Clean Water Act.	Mitigate unavoidable impacts to wetlands and other waters of the U.S.	See **Appendix E** for a description of drainages and wetland areas that would be avoided, if possible. Any unavoidable areas would be identified by milepost during the final design phase.	During design and construction
If work in a 100-year floodplain is unavoidable, DNRC and county floodplain administrators would be consulted during the design phase and, if required, appropriate permit(s) would be obtained and implemented.	Permit stipulations would avoid or mitigate potential disturbance within floodplains.	Marias River, Old Maids Coulee, and Teton River crossings	Pre-/during construction
Wherever possible, placement of new structures and associated construction activities would occur out of wetland boundaries.	Avoidance of impacts to wetlands and other waters of the U.S.	See **Appendix E** for a description of wetland areas that would be avoided if possible. Any unavoidable areas would be identified by milepost during the final design phase.	Pre-/during construction
Reclamation & Revegetation			
Disturbed areas would be reclaimed by appropriate contouring and replanting with an approved seed mix. All seed mixtures would be certified "weed free."	Re-establishing desirable vegetation cover on disturbed sites to prevent soil loss and weed infestation.	Throughout Project area. Also see MATL's draft Noxious and Invasive Weed Plan and draft Reclamation and Revegetation Plan (**Appendices C** and **D**).	Post-construction

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
If feasible, equipment would go around wooded areas. Tree removal would be kept to a minimum.	Avoiding or selectively cutting trees would protect limited forested habitats. Avoidance is preferred.	No forested areas have specifically been identified to date. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**)	During construction
Noxious weeds would be controlled through implementation of noxious weed control plans approved by appropriate county agencies.	These efforts would reduce or eliminate introduction and spread of invasive, noxious plants.	Throughout Project area. Also see MATL's draft Noxious and Invasive Weed Plan and draft Reclamation and Revegetation Plan (**Appendices C** and **D**).	Pre-/during construction
Disturbed areas would be reclaimed to pre-construction condition or landowner requests as site work is completed.	Reduce or eliminate erosion, and weed invasion.	Throughout Project area. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**).	During/post construction
Any reseeding would be done with an approved seed mixture.	Reduce or eliminate spread or invasion of noxious weeds.	Throughout project area. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**).	Post construction
If necessary, vehicle wash stations would be located at appropriate locations and would be used to minimize the spread of noxious weeds along the right-of-way. All construction equipment would be thoroughly washed prior to first use on the Project.	Cleaning would remove mud, dirt, and plant parts from undercarriages, tires, grills, radiators etc. This would reduce potential of spreading noxious weeds.	Need and location of vehicle wash stations would be determined during final design stage.	During construction
All fill mixture brought into construction areas would be free of noxious weeds.	Borrow site should be inspected to minimize movement of noxious weeds.	Throughout Project area. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**).	During construction
Health & Safety			
All on-site servicing or refueling of construction equipment would be performed using protective spill containment or absorption mats.	To prevent spills of pollutants, such as fuels and lubricants.	Throughout Project area	During construction
Storage of oil fluids or petroleum products on site would be prohibited. All petroleum products would be removed to a disposal facility authorized for disposal.	Reduces chances of spills and ensures proper storage and disposal of fuels and lubricants.	Throughout Project area	During construction

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
All construction debris and trash would be contained and removed on a daily basis.	Daily containment and removal would prevent accumulation and windblown trash.	Throughout Project area	During construction
Traffic management and control of local roadways would be considered during construction.	Avoid unnecessary impacts to local traffic patterns.	State highway crossings and all county highway crossings. County crossings would be identified by milepost during final design and encroachment permits would be obtained, as required, from local county offices.	During construction
Human Health & Environment			
MATL would address individual complaints concerning radio and television interference as needed.	Alleviate individual impacts to radio and television users in vicinity of line.	As required, throughout Project area.	Pre/post-construction
Design would incorporate reduction or elimination of induced current and voltages.	Eliminate impacts associated with proximity and electric shock.	Throughout Project area	Pre-construction
Design and construction would be such to reduce electromagnetic field to the extent feasible.	Reduce potential for EMF effects.	Throughout Project area	Pre-construction
Land Use			
Construction would be planned to avoid periods of intense farming (for example, grain harvest) as applicable.	Avoid crop damage or compensate for damage.	Croplands throughout Project area.	Pre-/during construction
Fences, gates, and cattle guards would be repaired or replaced to their original condition if damaged during construction.	Resolution of potential property damage through replacement or repair.	Throughout Project area	Post-construction
MATL would secure encroachment permits from the MDT and counties for the design and construction of structures along or crossing any highway right-of-way.	Minimize impacts and safety concerns in the vicinity of roads and highways.	Final location of crossings would be determined during final design stage.	Pre-construction

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
Cultural			
A project map would be provided to the contractor identifying all sensitive areas relative to the selected alternative. Prepare unanticipated discoveries plan.	Contractor awareness and mitigation implementation (notification and/or avoidance).	To be identified once cultural resources inventory and study are completed.	Pre-construction
Archeological monitors (including tribal) would be used when working in the vicinity of archeological sites.	Would monitor and work closely with MATL and contractor to ensure application of mitigation/avoidance measures.	The need for this would be assessed once the cultural resources inventory and study are completed.	During construction
Selective pole placement would be used to avoid impacts to cultural resource sites.	Cultural resource site protection.	To be identified once cultural resources inventory and study are completed.	Pre-construction
Access roads through cultural resource sites would be prohibited.	Cultural resource site protection.	To be identified once cultural resources inventory and study are completed.	Pre-construction
If any buried antiquities or remains are discovered, the contractor would notify DEQ and SHPO prior to continuing work.	Would allow for proper treatment of any undiscovered sites.	Unknown	During construction
Visual			
Structures would be placed to avoid or span visually sensitive features whenever possible.	Reduce potential visual quality impacts.	To be identified once visual resources analysis is completed during the EIS.	Pre-/during construction
No paint or permanent discoloring agents would be applied to rocks or vegetation. All flagging would be removed upon completion of the project.	Reduce potential visual quality impacts.	Throughout Project area.	Pre-/during construction
Wildlife			
Raptor safe power line construction practices (Edison Electric Institute, Avian Power Line Interaction Committee) would be employed during transmission line construction.	To reduce risk of electrocution to perching raptors.	Throughout Project area, as needed (Benton Lake NWR, and others).	Pre-/during construction
Approved line marking devices would be installed at appropriate intervals and appropriately staggered on each overhead ground wire across stream crossing and migratory bird flyways (for example, wetland crossings) within the right-of-way.	Minimization of potential bird strikes at stream crossings and other high use areas.	Installed at water body and drainage crossings and at wetland areas identified in **Appendix E**. This would be finalized during final design.	Pre-/during construction

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
MATL would consult with FWP concerning construction activities (for example, timing) near sharp-tailed grouse leks.	Timing restrictions on construction near sharp-tailed grouse leks would reduce potential disturbance to grouse.	Leks were identified within 1 mile of the Marias River crossing and would be addressed.	Pre-/during construction
Air Quality			
Water would be sprayed on areas that are producing excessive airborne dust in proximity of residences and communities and as needed to ensure safety during construction.	Dust suppression during dry periods or near populated areas.	Throughout Project area, as required to address dry conditions during construction.	During construction

Notes:

DNRC	Department of Natural Resources and Conservation
EMF	Electric and magnetic field
EIS	Environmental Impact Statement
FWP	Montana Fish, Wildlife, and Parks
MATL	Montana Alberta Tie Line
MDT	Montana Department of Transportation
MPDES	Montana Pollutant Discharge Elimination System
NWR	National Wildlife Refuge
SHPO	State Historic Preservation Office
SWPPP	Storm Water Pollution Prevention Plan

Source: This table is from the MATL MFSA application, Revised submittal, August 2006.

MATL proposes to implement a worker education program and on-site monitors to ensure that site-specific environmental protection measures would be strictly followed. Other guidance MATL proposes to use includes WAPA's Construction Standard 13 (WAPA 2001), and Raptor-Safe Power Line Construction Practices (Edison Electric Institute [EEI] and Avian Power Line Interaction Committee [APLIC] 1996). Applicable standards from Standard 13 that MATL would adopt include:

- *Landscape Preservation (Section 13.3):* Includes guidance on preserving landscape features, constructing and restoring construction roads, and constructing and restoring construction facilities, such as offices and storage yards.
- *Preservation of Cultural Resources (Section 13.4):* Provides requirements for treatment and notification of known or discovered cultural sites or artifacts.
- *Noxious Weed Control (Section 13.5):* Requires a "clean vehicle policy" when entering and leaving construction areas to prevent transport of noxious weed plants and/or seed.
- *Disposal of Waste Material (Section 13.8):* Requires removing and disposing of all waste material generated during construction.
- *Pollutant Spill Prevention, Notification, and Cleanup (Section 13.10):* Requires measures to prevent spills of pollutants and appropriate response if a spill occurs. Includes any solvent, fuel, oil, paint, pesticide, engine coolant, or similar substance.
- *Prevention of Air Pollution (Section 13.13):* Ensures that construction activities and equipment operation reduce air pollutant emissions, and that nuisance dust is controlled.

Site-specific locations where these measures would be used would be finalized during the final design phase and would be identified by project milepost location when that information becomes available. Final mitigation measures required to address those site-specific measures (and all other finalized plans) would be submitted to the agencies before construction begins. In addition, MATL would work with the agencies to identify the extent of environmental monitoring that would be needed during and after construction.

The agencies would apply environmental specifications to the proposed Project. Revised draft DEQ Environmental Specifications (**Appendix F**) identify general environmental protection measures and sensitive areas for site-specific specifications; DOE and BLM might also provide some additional measures.

2.4 Alternative 3 — MATL B

Alternative 3 generally parallels the NWE 115-kV line along its entire distance from the line's tie-in to NWE's 230-kV switchyard north of Great Falls to a substation near Cut Bank.

This alternative is described in the MATL MFSA application as Alternative MATL B (MATL 2006b). Alternative 3 was designed based on a single application criterion listed in Circular MFSA-2, with specific intent to use or parallel the existing NWE 115-kV transmission line corridor. This alternative alignment was initially considered by MATL as its preferred option, but MATL has since changed its preference. This alternative is not intended to address potential land use issues or maintenance issues but is the shortest and potentially the least costly alternative under consideration.

Description of Alignment

The alignment for Alternative 3 would be 121.6 miles long (**Figure 2.4-1**) and would use H-frame design structures for its entire length. The south part of the alignment is shown in detail on **Figure 2.4-2**. The middle part is shown on **Figure 2.4-3**, and the north part is shown on **Figure 2.4-4**. The alignment would leave the Great Falls Switchyard in a northwesterly path then turning west for about ½ mile on private property north of existing lines. The alignment would turn north along a field boundary and travel on the west side of the Great Falls Shooting Sports Complex (Complex). The Alternative 3 alignment would rejoin and closely parallel the Alternative 2 alignment north of the Complex at approximately milepost 2.3, generally following the NWE 115-kV power line. Alternative 3 would diverge from Alternative 2 again around milepost 13. Alternative 3 would continue in a northwesterly direction, following the 115-kV power line, on the east end of Teton Ridge, while Alternative 2 would turn west then north.

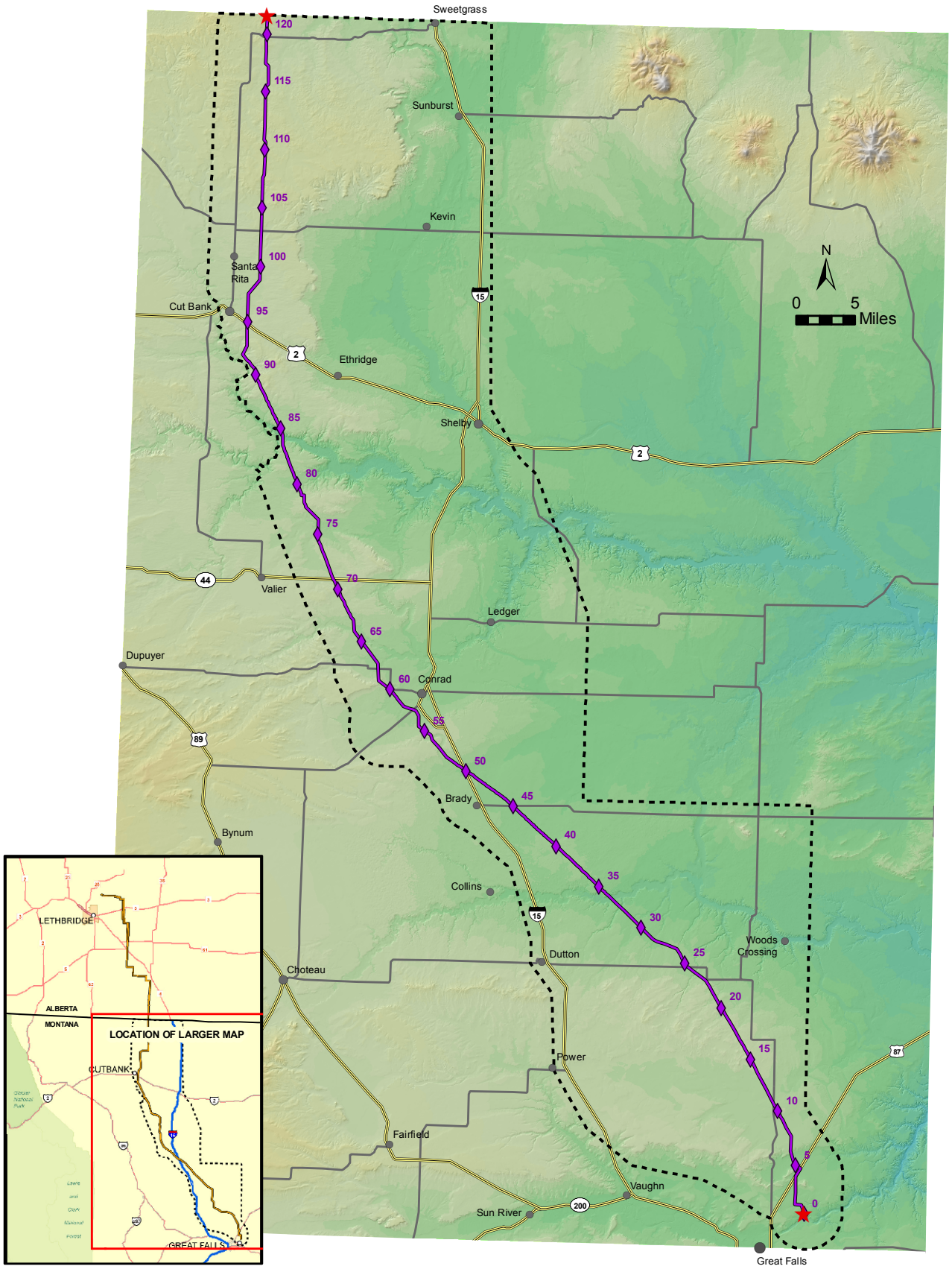


FIGURE 2.4-1
ALTERNATIVE 3 ALIGNMENT
(MATL B)

LEGEND

- ALT3 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-1_MATL_ALT3_Alignment All_111607.mxd

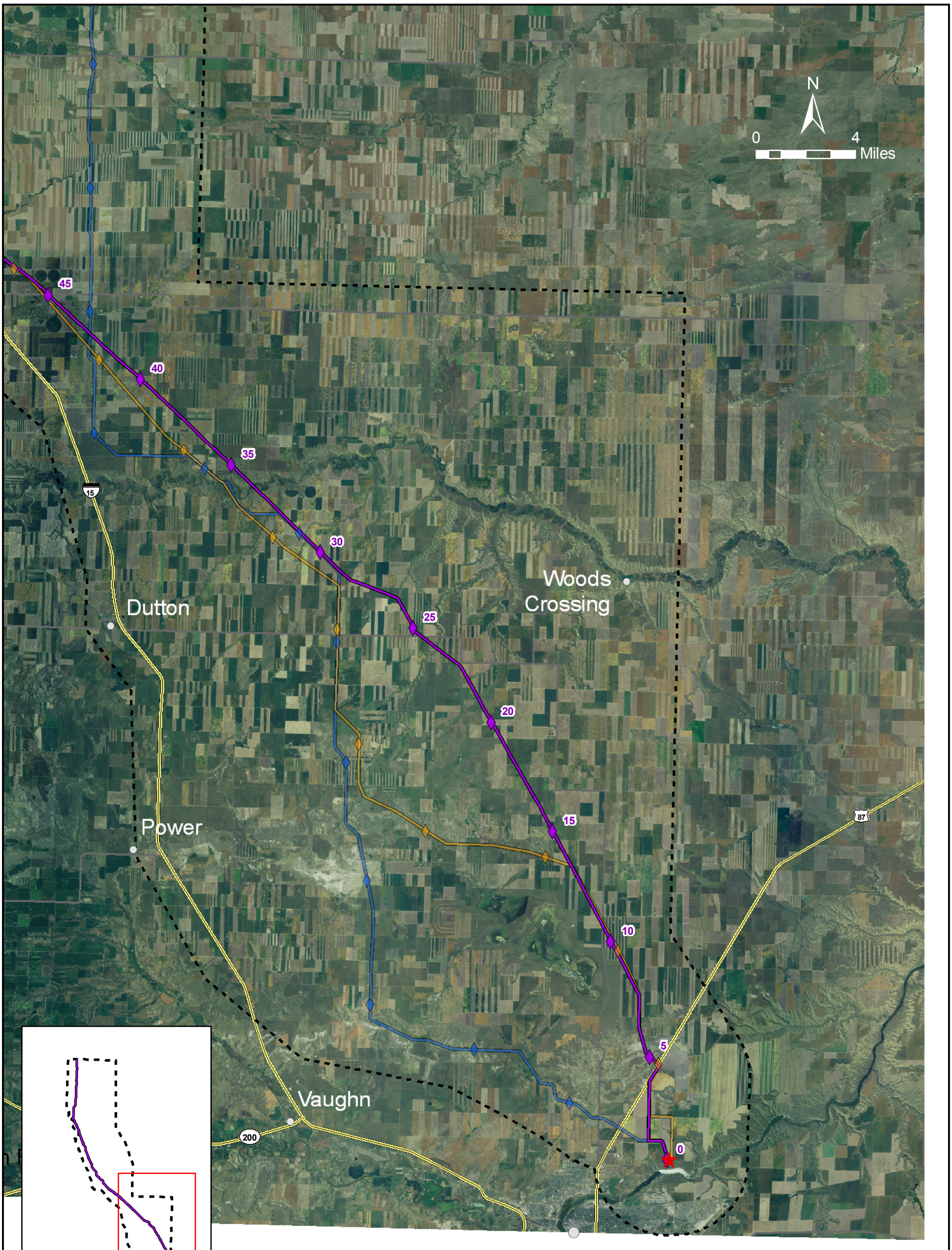


FIGURE 2.4-2
ALTERNATIVE 3 ALIGNMENT
SOUTH

LEGEND

- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-2_MATL_ALT3_Alignment_South_111607.mxd

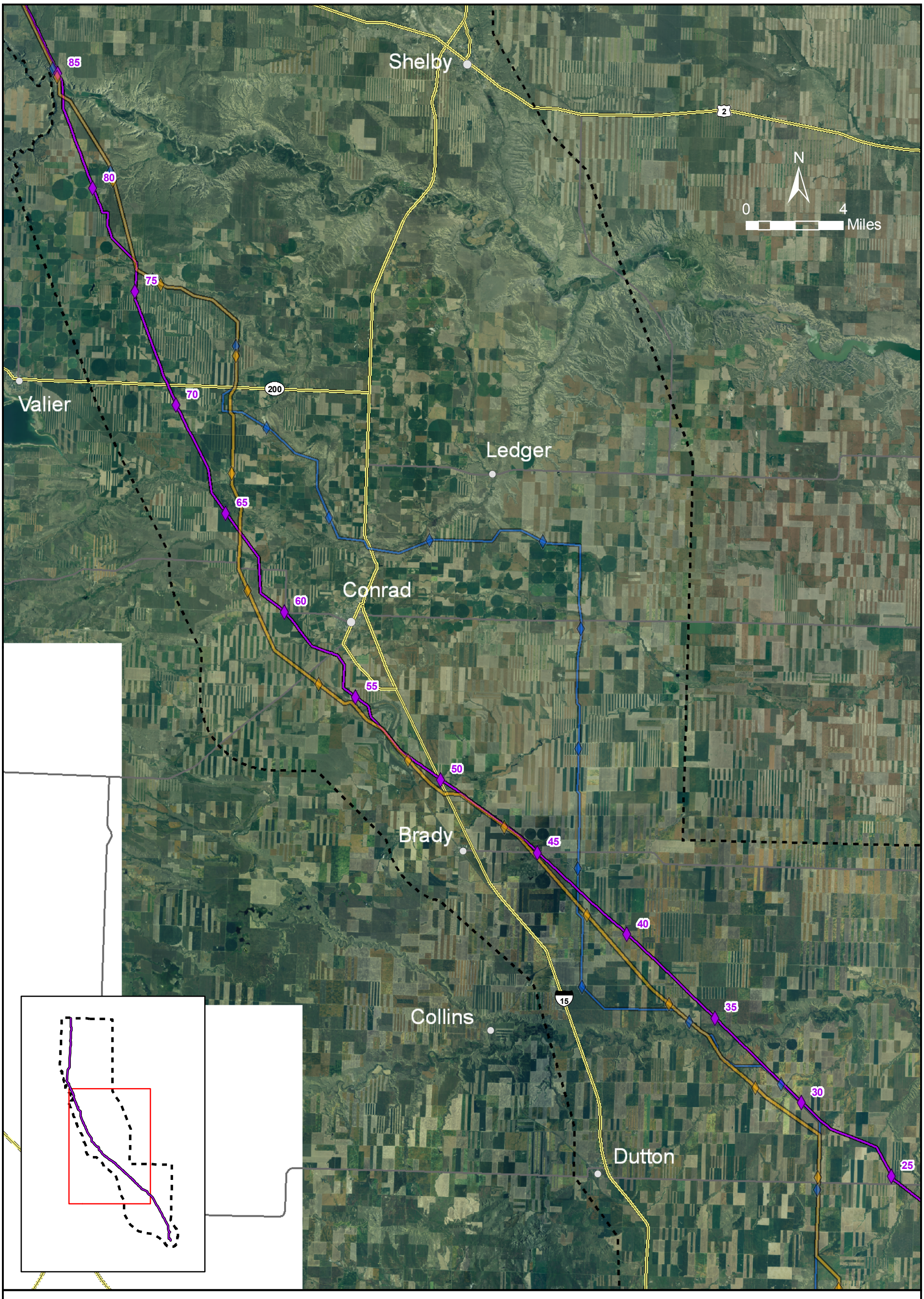


FIGURE 2.4-3
ALTERNATIVE 3 ALIGNMENT
MIDDLE

LEGEND

- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-3_MATL_ALT3_Alignment_Middle_111607.mxd

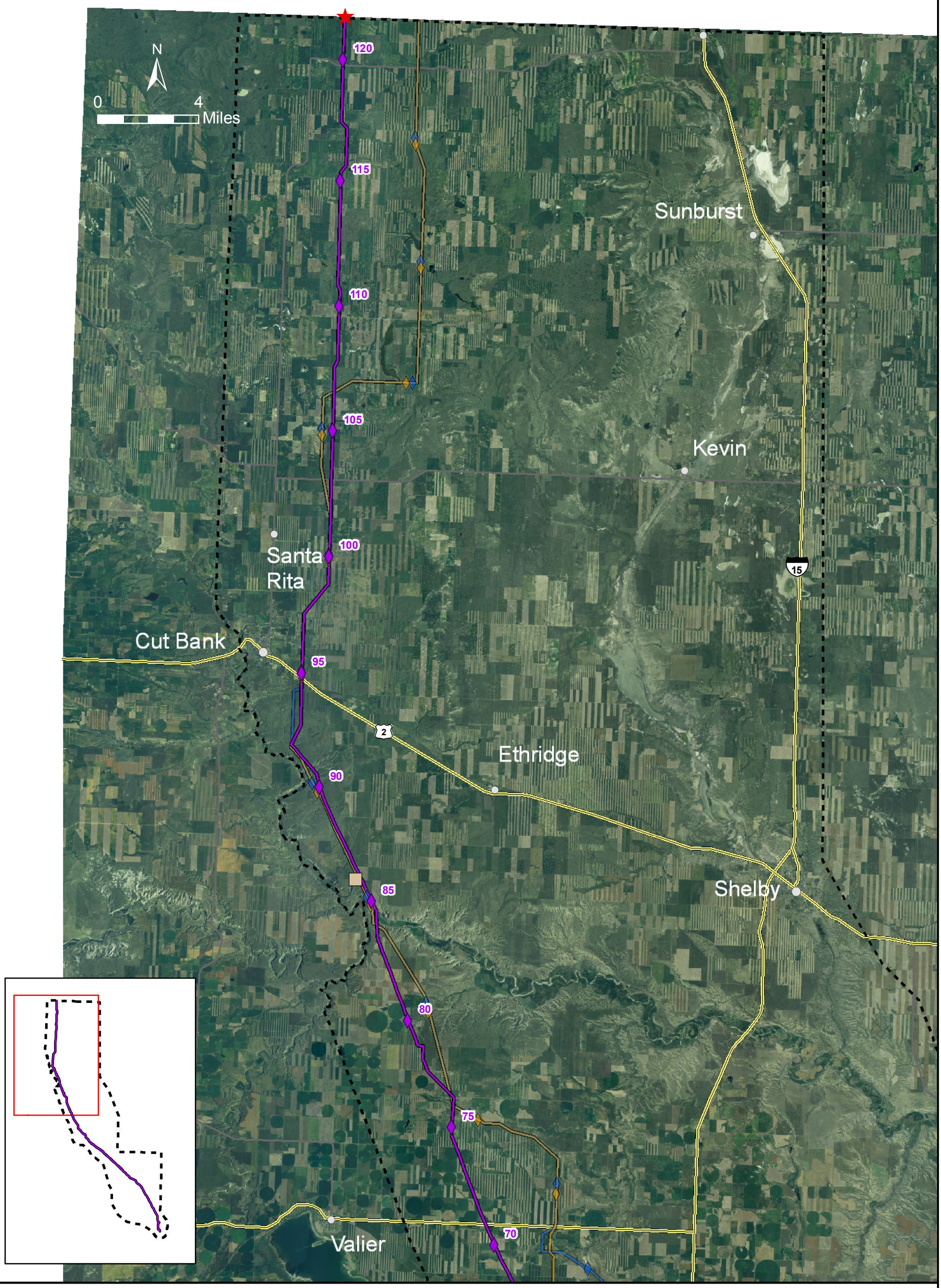


FIGURE 2.4-4
ALTERNATIVE 3 ALIGNMENT
NORTH

LEGEND

- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- MARIAS SUBSTATION

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-4_MATL_ALT3_Alignment_North_111907.mxd

Alternative 3 and Alternative 2 would come within about ¾ mile of each other and parallel each other (but not join) at approximately milepost 32 of Alternative 2 within the Diamond Valley area. Alternative 3 generally would continue paralleling the NWE 115 kV line while Alternative 2 would be located further west from about milepost 32 to approximately milepost 70 north of Conrad.

The Teton River crossing would be approximately 1 mile west of Kerr Bridge (20th lane) in an area east of a mature riparian cottonwood stand. Alternative 3 would cross South Pondera Coulee east of Alternative 2 then generally continue northwest across the tip of the Teton bench while Alternative 2 would head north to its crossing of the Dry Fork of the Marias River. Alternative 3 would cross the Dry Fork of the Marias River west of the Alternative 2 crossing to rejoin Alternative 2 at approximately milepost 76 by Bullhead Creek. Alternative 3 diverges from the NWE 115-kV line about 1½ miles south of Bullhead Creek, going north to cross Bullhead Creek at the same location as Alternative 2. Alternative 3 then rejoins the NWE 115-kV line to continue northwest with some minor differences.

In Alternative 3, the crossing of the Marias River would be just to the east of the Alternative 2 crossing. From here to Cut Bank, the alignment for Alternative 3 would either parallel or overlie Alternative 2. Alternative 3 would diverge notably from Alternative 2 north of Santa Rita, at approximately milepost 102. From this location, Alternative 3 would continue in a northerly direction, while Alternative 2 would turn east before heading north. The border crossing for Alternative 3 would be approximately 4 miles west of the border crossing for Alternative 2. **Table 2.3-2** describes additional design characteristics for Alternative 3.

Except as specified in this section, the following aspects of Alternative 3 would be the same as described under Alternative 2: rights of way width, implementation, conductors, markers, substations, access roads, construction, operations, maintenance, and potential environmental protection measures listed in **Table 2.3-4**. Only H-frame structures would be used for Alternative 3.

The agencies would apply environmental specifications to this alternative. DEQ's draft Environmental Specifications (**Appendix F**) identify general environmental protection measures and sensitive areas for site-specific specifications; DOE or BLM might require some additional environmental protection measures.

2.5 Alternative 4 – Agencies' Alternative

Alternative 4 was developed by DEQ in response to public comments and concerns. This alternative is acceptable to the other agencies and will be referred to as the agencies' alternative throughout this document. Alternative 4 was developed to address public concerns regarding line interference with farming activities and close proximity to residences. It would use portions of Alternative 2 from north of Conrad to the Montana-Alberta border. When developing Alternative 4, the agencies located the alignment to maximize the use of range and pasture land, where available. Where cultivated land would be crossed, the alignment was generally located along north-south and east-west field or strip boundaries, as suggested by public comment. Where the alternative does not run north-south or east-west, it would be mostly located on range and pasture land, where interference with farming would be reduced. Public land would be used when it would be reasonably available, but most land in the study area is privately owned.

The agencies also attempted to maintain a buffer around residences to reduce visual impacts and help alleviate concerns about potential health effects; however, in order to maximize the use of field and strip boundaries, the alternative would be located within ¼ mile of several residences.

Specific line location suggestions by individual landowners were incorporated into Alternative 4 south of Highway 2, south of Highway 44, south of the Teton River in the Diamond Valley area (see **Appendix A** for a description of other potential alignments in the Diamond Valley area), and north of the Great Falls 230-kV Switchyard. Alternative 4 would parallel WAPA's 230-kV single pole Great Falls to Conrad line where that line is located mostly on range and pasture land. In response to extensive public comment, this alternative would incorporate a single pole design where cropland and land enrolled in CRP would be crossed.

The agencies identified other possible local realignments to address the specific issues raised during initial scoping. After initial analysis, only five of the local realignments were assembled into this alternative. The initial analysis of the local realignments is in **Appendix A**. In response to public comments on the March 2007 document, three Local Routing Options were identified through the Diamond Valley area that could substitute for that portion of Alternative 4 (Section 2.6.1). Although Alternative 4 is analyzed as a whole, the agencies could select some or all of the local realignments or other realignments that have been reviewed for other alternatives but not included in this alternative.

Except as specified in this section, the following aspects of Alternative 4 would be the same as described under Alternative 2: rights of way width, design, implementation, combination of H-frame and monopole structures, conductors, markers, substations, access roads, construction, operations, maintenance, and environmental protection measures listed in **Table 2.3-4**. Alternative 4 would require the use of monopole structures on all cropland and CRP land, not just where cropland and CRP land would be crossed on the diagonal. **Table 2.3-2** describes additional design characteristics for Alternative 4.

Alternative 4 would be 139.6 miles long in Montana and is shown on **Figure 2.5-1**. **Figures 2.5-2, 2.5-3,** and **2.5-4** show the alignment in more detail. MATL has indicated that because Alternative 4 is longer than the other alternatives this alternative would be more expensive than alternatives 2 and 3. MATL estimates that Alternative 4 would result in a 12-month delay and a $7 million increase in direct costs (Tonbridge Power, Inc. 2007).

MATL has stated that if Alternative 4 is selected, the project would be unlikely to be built. MATL has indicated to the agencies that MATL would have difficulties obtaining adequate financing for the project due to additional costs and delays. Comments received from landowners indicate that Alternative 4 would minimize impacts to farmland. Although MATL has indicated a reluctance to implement this alternative, it is possible that MATL could reconsider this position if this alternative were selected by the agencies.

The alignment would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of cultivated land, where possible (**Figure 2.5-2**). Where Alternative 2 would go directly north out of the Great Falls Switchyard, Alternative 4 would take a west-northwesterly path out of Great Falls paralleling the WAPA 230-kV Great Falls to Conrad transmission line (on its northside), making use of an existing transportation corridor. This alignment would traverse to the south and west of Benton Lake National Wildlife Refuge and rejoin the Alternative 2 alignment around milepost 27. In the Diamond Valley area, just south of the Teton River, the alignment would run directly north at milepost 32 where Alternative 2 turns northwest. Where the Alternative 4 alignment intersects the NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join the Alternative 2 alignment at approximately milepost 37 just south of the Teton River. The Alternative 4 alignment would then cross the Teton River just east of the location described in Alternative 2. The alignment would rejoin the Alternative 2 alignment after crossing the Teton River.

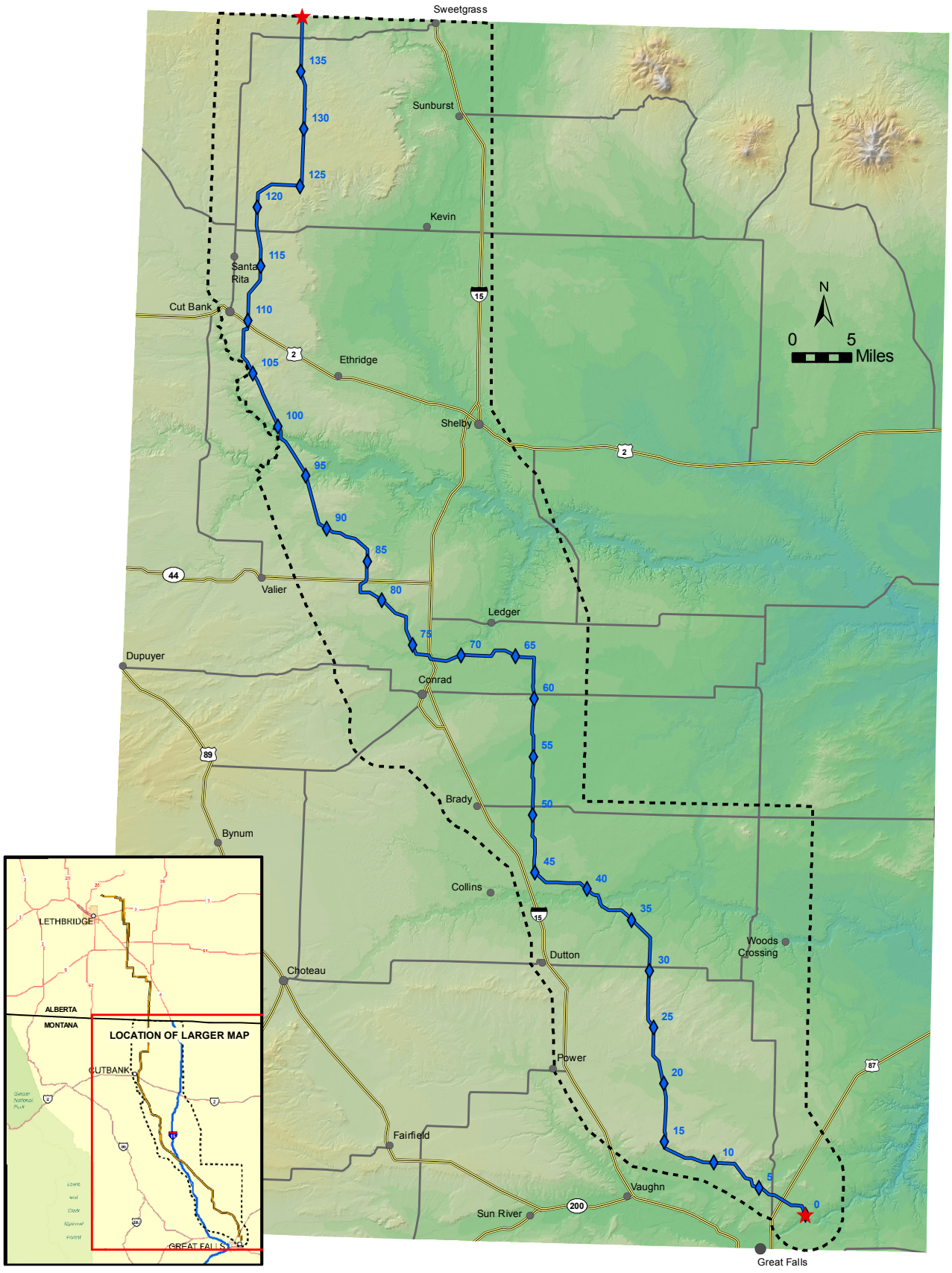


FIGURE 2.5-1
ALTERNATIVE 4 ALIGNMENT

LEGEND

- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_5-1_MATL_ALT4_Alignment All_111907.mxd

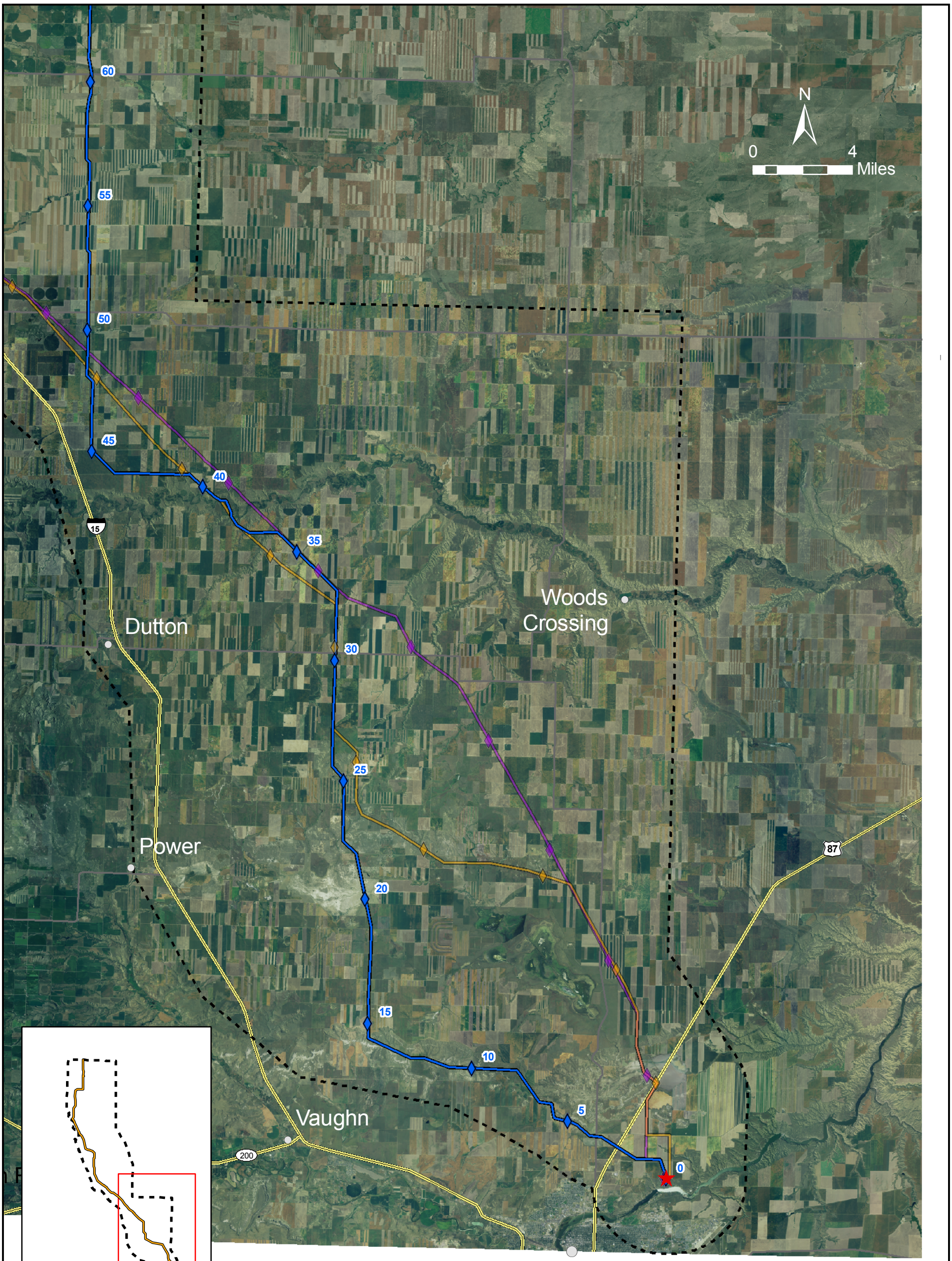


FIGURE 2.5-2
ALTERNATIVE 4 ALIGNMENT
SOUTH

LEGEND

- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_5-2_MATL_ALT4_Alignment_South_111907.mxd

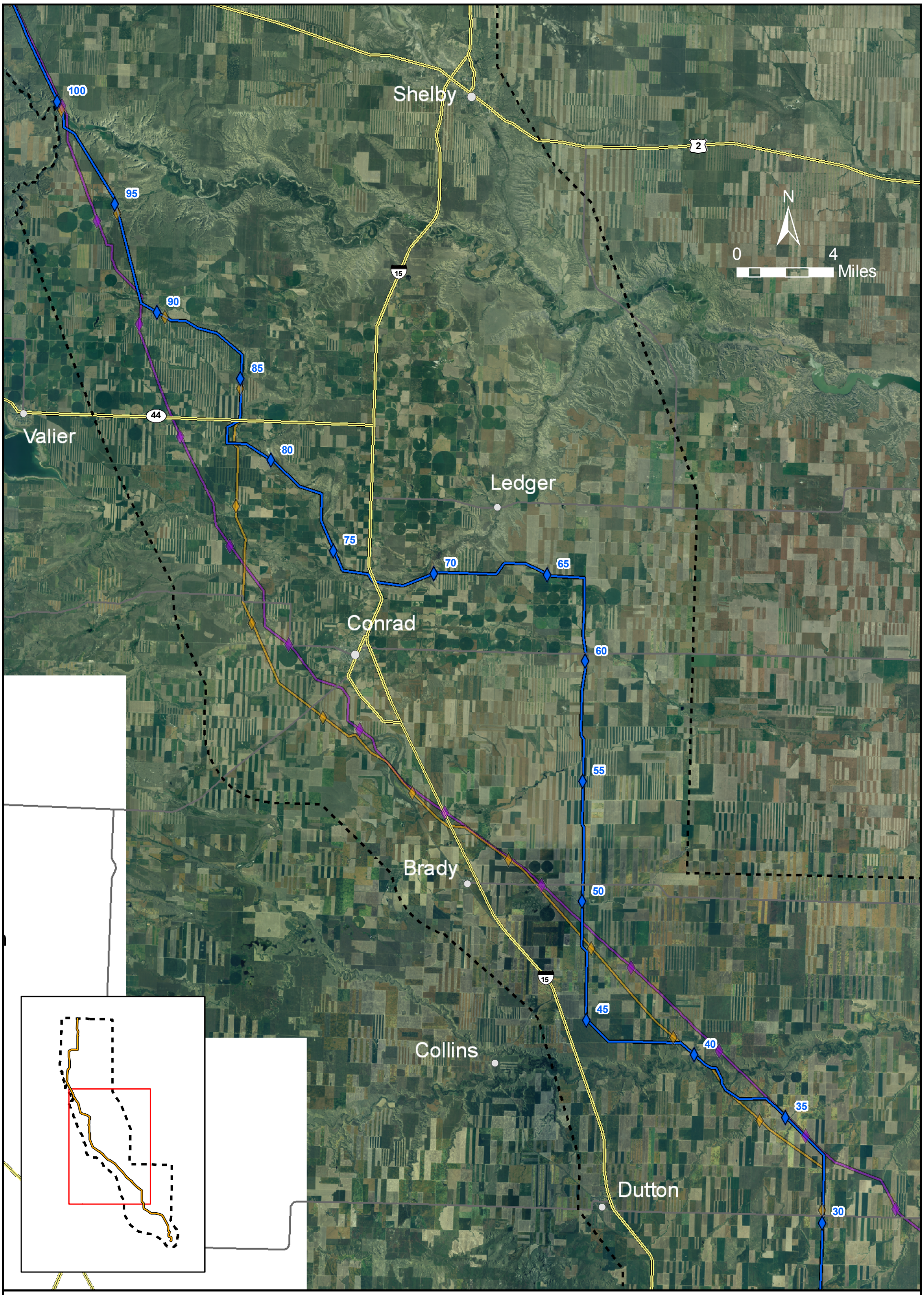


FIGURE 2.5-3
ALTERNATIVE 4 ALIGNMENT
MIDDLE

LEGEND

- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_5-3_MATL_ALT4_Alignment_Middle_111907.mxd

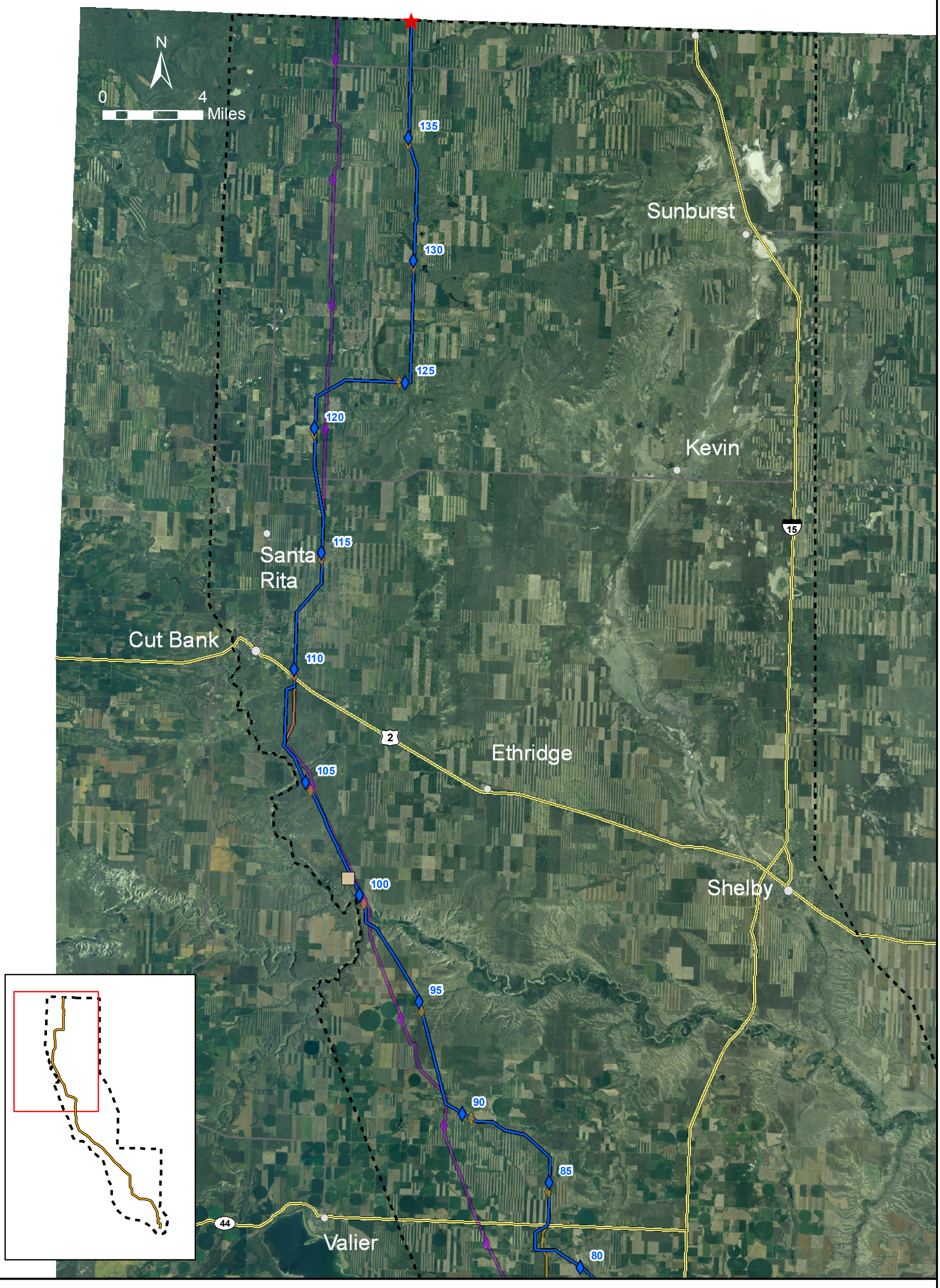


FIGURE 2.5-4
ALTERNATIVE 4 ALIGNMENT
NORTH

LEGEND

- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- MARIAS SUBSTATION

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_5-4_MATL_ALT4_Alignment_North_111907.mxd

After paralleling Alternative 2 for about 2 miles, the Alternative 4 alignment would diverge from the Alternative 2 alignment approximately 8 miles southeast of Brady. After running directly west for approximately 3 miles, Alternative 4 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it would intersect the Dry Fork of the Marias River. The alignment would generally parallel the Dry Fork of the Marias River until it crossed Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles.

The alignment would turn west for approximately 1 mile before crossing Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. The portion of the alignment along Dry Fork of the Marias and Big Flat Coulee would minimize diagonal crossing of crop land, avoid crossing crop land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

After crossing Alternative 2 near milepost 81, the Alternative 4 alignment would run slightly west of the Alternative 2 alignment for about 1 mile, just north of Belgian Hill, and would be located farther away from residences. The Alternative 4 alignment in this area would reduce visual impacts, although some diagonal crossing of farmland would be required. The alignment then rejoins the Alternative 2 alignment around milepost 83.

Just south of Highway 2 near milepost 107, the Alternative 4 alignment would be located approximately ¼ mile west of Alternative 2 for a 2-mile stretch. This location would better follow property boundaries and be located farther away from residences. The Alternative 4 alignment would rejoin the Alternative 2 alignment near milepost 109 and would follow the Alternative 2 alignment north for approximately 30 miles to the border crossing.

Design Features of Alternative 4

In order to minimize impacts, the transmission line would use monopole construction design in areas used for croplands and CRP. Monopole construction design is shown in **Figure 2.3-5**. The design characteristics are summarized in **Tables 2.3-1 and 2.3-2**. The Alternative 4 alignment would cross 88.9 miles of cropland and CRP.

The revised draft DEQ Environmental Specifications (**Appendix F**) identify general environmental protection measures and sensitive areas for site-specific specifications; DOE or BLM may also require some additional environmental protection measures. Bird markers would also be used where recommended within ¼ mile of wetlands. To implement this measure, FWP and FWS biologists would be invited to field verify sites identified for markings. To decrease the line's contrast and visibility, non-shiny

conductors would be used. Steel monopoles would be self-weathering to decrease contrast. In order to make the transmission line more visible to low flying aircraft navigating by the roads, ball markers would be used where the line crosses Interstate 15 and U.S. Highways 87 and 2. Marker balls would also be placed at all river crossings.

2.6 Development of Local Routing Options for Alternatives 2 and 4

Based on public comments received on the March 2007 document and the Draft EIS, the agencies worked with landowners to refine Alternatives 2 and 4 to address landowner concerns related to costs, impacts to farming, impacts to other land uses, and impacts to visuals resources. They developed 11 Local Routing Options for Alternative 2, a subset of which could also be applied to Alternative 4. Since the publication of the Draft EIS, the agencies have identified four minor variations to the Local Routing Options and one variation to a segment of Alternative 2. These variations are intended to help mitigate and minimize impacts to existing and future land uses in this area. These variations are described in Sections 2.6.1 (Diamond Valley Area), 2.6.5 (Northwest of Conrad), 2.6.6 (Belgian Hill Area), 2.6.8 (South of Cut Bank), and 2.6.9 (Great Falls 230-kV Switchyard Area). **Figure 2.6-1** provides the general locations for the Local Routing Options and Variations.

The public comments, meetings with landowners, and cost information were used to further refine and compare the Local Routing Options based on the costs to landowners to farm around structures on diagonal field crossings, costs to landowners to farm around structures on field edges, and the cost to MATL of additional line construction (Section 3.16). Other land use issues were considered, including one landowner's concern over the potential loss of income if the line is too close to allow the construction of a wind turbine on his land. The agencies also considered the potential for visual and human health impacts associated with the Local Routing Options and their proximity to residences. Potential impacts for other resources were considered but are not discussed in detail since the potential effects would differ little between the Alternative 2 alignment and the Local Routing Options. The sections below describe the Local Routing Options in more detail and give the primary reasons for their development.

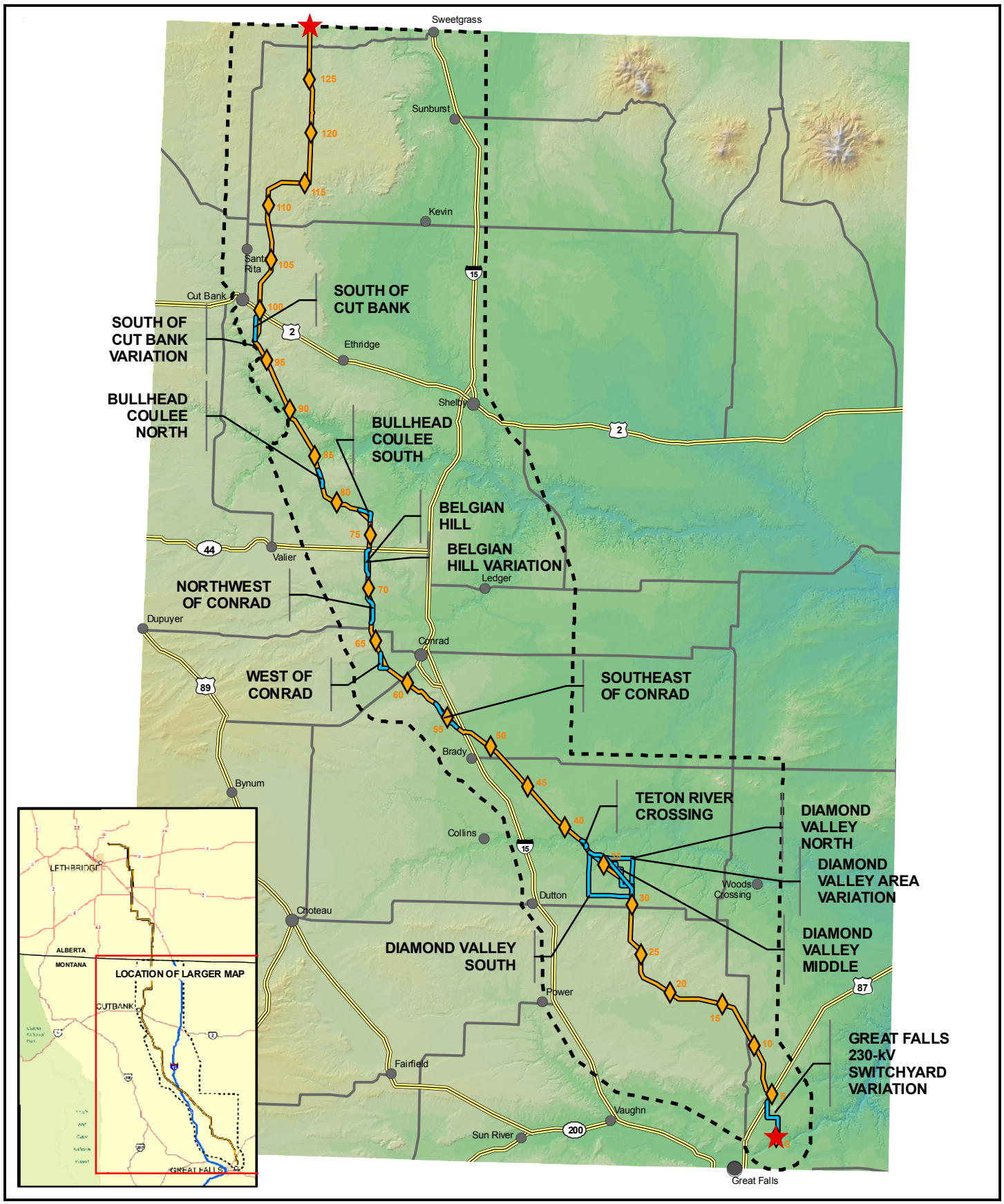


FIGURE 2.6-1
LOCAL ROUTING OPTIONS AND VARIATIONS

GIS map by Ed Madej -TTEMI-HE Fig2_6-1_MATL_Local_Routing_Options_All_091108.mxd

2.6.1 Diamond Valley Area

Landowner concerns with Alternative 2 in the Diamond Valley area east of Dutton focused on the amount of farmland crossed on the diagonal by Alternative 2 and the close proximity of residences. The Alternative 4 location in the Diamond Valley area was developed to avoid proximity to residences and reduce diagonal crossing of farmland. However, Alternative 4 would still diagonally cross about 3.5 miles of farmland where it would parallel NWE's existing 115-kV line and could create even more obstacles for farm equipment. The Alternative 4 portion through the Diamond Valley did not meet with local acceptance and is no longer being carried forward as a mitigating measure for Alternative 2 in this area. Three Local Routing Options were identified for the Diamond Valley area (**Figure 2.6-2**). In addition to the Diamond Valley South and Diamond Valley North options that were suggested by the local landowners, MATL identified the Diamond Valley Middle option.

The Diamond Valley South routing, although longer than other options, would be located almost entirely along section lines to minimize diagonal crossing of cultivated fields. It also would avoid residences by at least ¼ mile. In Section 7, T24N, R2E where this routing does cross a field diagonally, it is situated such that the guyed angle structures would be in range and pasture lands. This option would be approximately 1.7 miles longer than Alternative 2 and more costly to construct.

The Diamond Valley North option is similar to the Diamond Valley South option in that it would be located primarily on section and half section lines and would avoid diagonal crossing of most cultivated land. It also would avoid close proximity to residences.

This routing would cross the existing NWE 115-kV line twice, potentially creating areas in fields not sprayable by cropdusters where the two lines are in close proximity and create an acute angle. This routing would be located near a single grain bin that might have to be moved if too close to the transmission line. It would be approximately 1.6 miles longer than Alternative 2 and more costly to construct.

The Diamond Valley Middle option is being considered as an applicant-initiated option. It would be approximately 1.3 miles longer and more costly to construct compared to Alternative 2. This option would be located within ½ mile of three residences. The Diamond Valley Middle option would create several angular approaches to the existing NWE 115-kV line (primarily Section 25 T25N, R1E) resulting in some potentially un-sprayable fields if cropdusters were used.

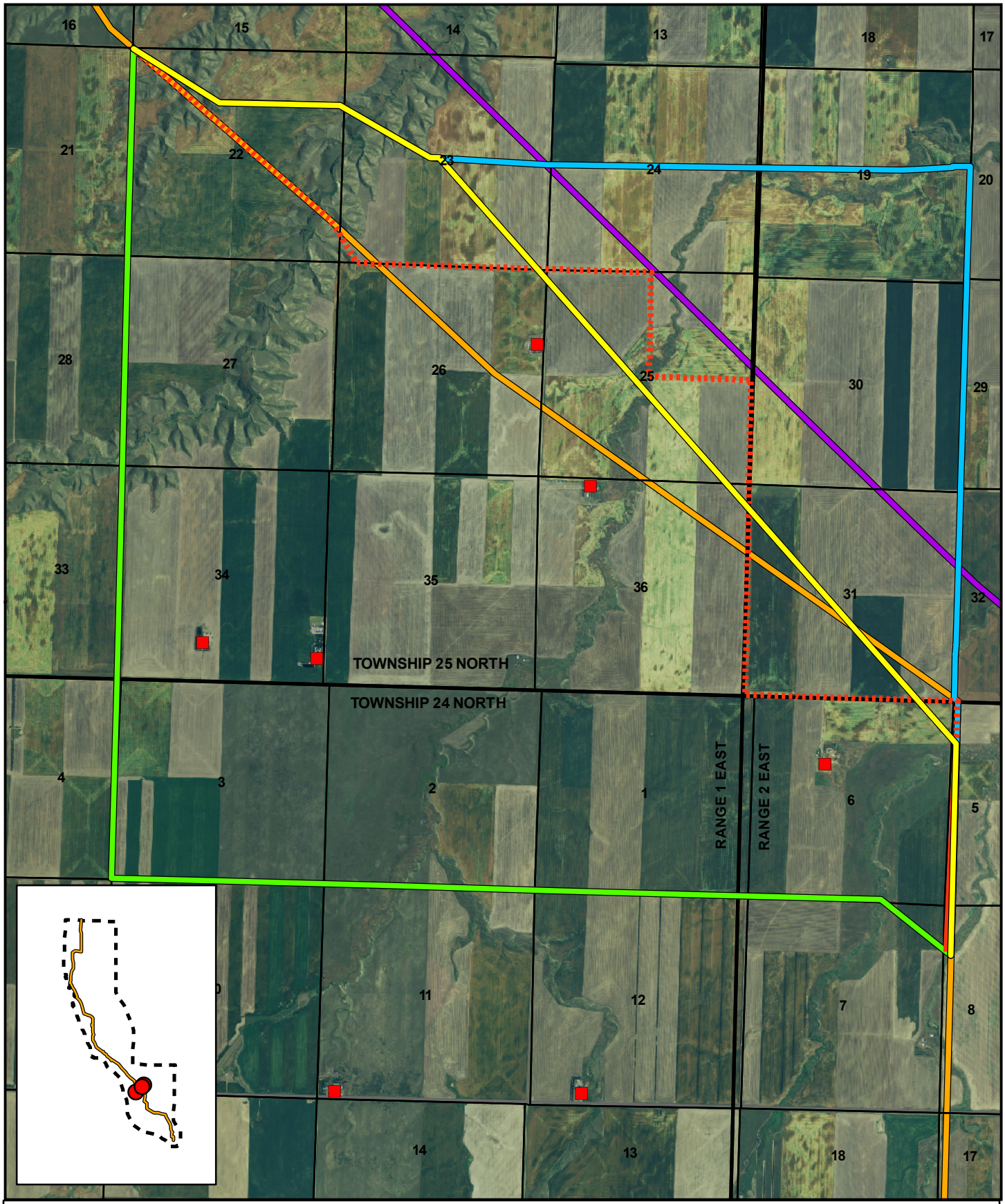


FIGURE 2.6-2
LOCAL ROUTING OPTION AND VARIATION
DIAMOND VALLEY AREA

GIS map by Ed Madej -TTEMI-HE Fig2_6-2_MATL_Diamond_Valley_Routing_Options_091107.mxd

In comments on the Draft EIS, landowners suggested a variation on Local Routing Options in the Diamond Valley area as indicated on **Figure 2.6-2**. It would better avoid one residence but would be slightly longer than Alternative 2. It would still involve crossing cultivated land with monopole structures. Compared to Alternative 2, it would cross an additional 1.3 miles of farmland (5.1 miles for Diamond Valley minor routing variation verses 3.8 miles for Alternative 2). MATL has indicated it would attempt to locate structures on field boundaries regardless of the selected route, but limitations in span length and possibly line tension would result in some structures being placed in mid-field locations.

2.6.2 Teton River Crossing Area

The Teton River Crossing Local Routing Option **(Figure 2.6-3)** was developed based on a landowner's concern that a structure would be located on a low terrace that is reported to have flooded in 1964 and DNRC's recommendation that the line be located at the edge of fields. The general alignment of this option is similar to Alternative 4 through this specific area. The Teton River has a meandering channel through a much broader river floodplain. The rerouting of Alternative 2 through this location would put the structure on a slightly higher elevation. The proximity to residences would be the same for this option as Alternative 2 with no occupied residences nearby. Because the Teton River Crossing routing would require more angled structures, it would be more costly to construct compared to Alternative 2.

2.6.3 Southeast of Conrad

The Southeast of Conrad Local Routing Option **(Figure 2.6-4)** was proposed to decrease diagonal crossing of cultivated farmland. Most of this routing would be on range and pasture land. This option would result in less farming impacts than Alternative 2. The construction costs would be slightly greater than the costs for Alternative 2.

2.6.4 West of Conrad

The suggested Local Routing Option west of Conrad would reduce the amount of cultivated land crossed diagonally **(Figure 2.6-5)**. This option would decrease potential mid-field interference with aerial crop dusting compared to Alternative 2, but would increase edge-of-field and some mid-field interference along the southern east-west segment. The landowner suggested that monopoles be used along field edges of this Local Routing Option. When presented with a choice between H-frame structures at the edge of the field and monopoles crossing the fields diagonally, the landowner indicated that the monopole option would be preferable (Jones 2008). This routing would result in reduced farming costs to farmers due to structure locations along the edges of fields.

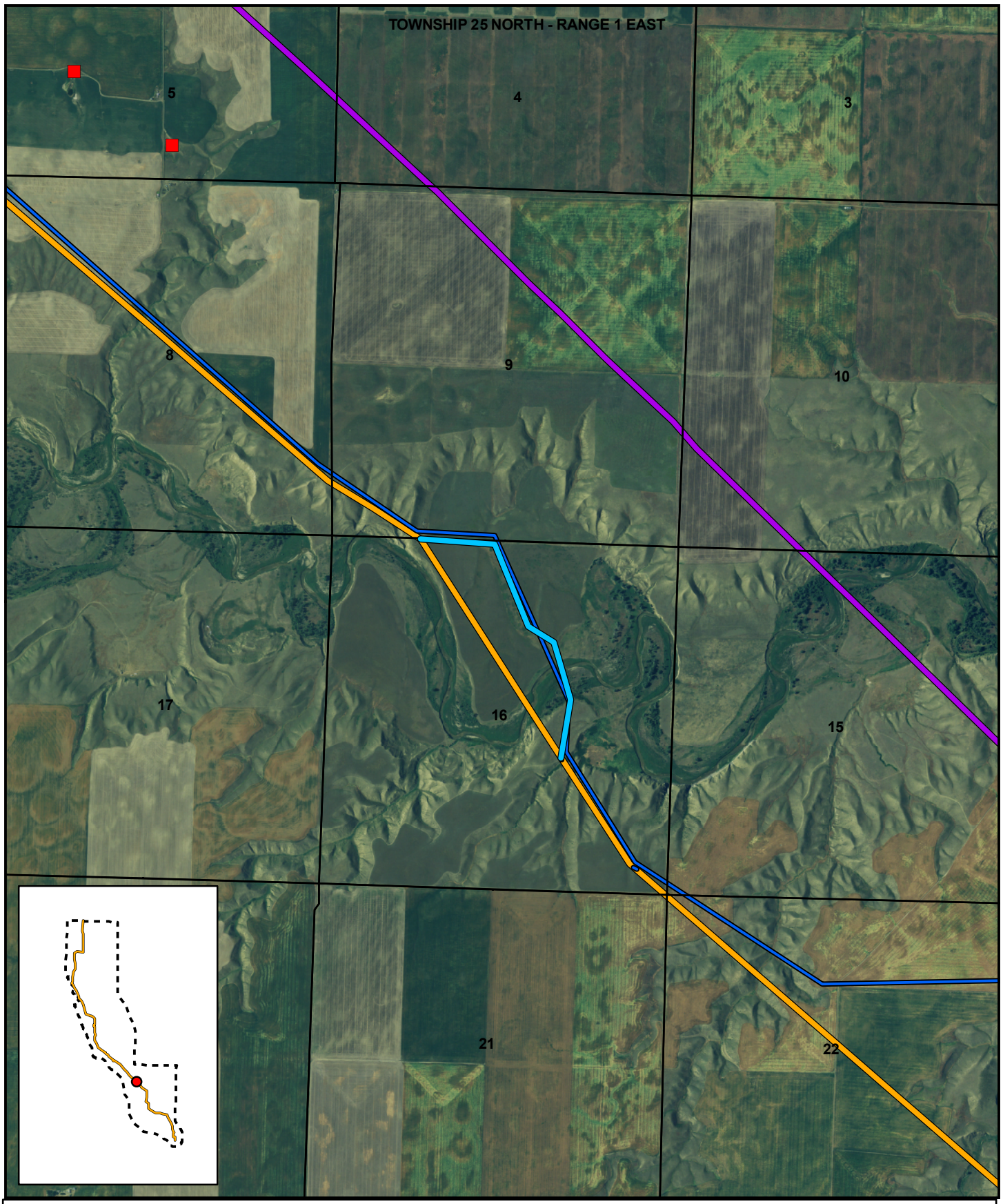


FIGURE 2.6-3
LOCAL ROUTING OPTION AT TETON RIVER CROSSING

GIS map by Ed Madej -TTEMI-HE Fig2_6-3_MATL_Teton_River_Crossing_Routing_Option_121007.mxd



FIGURE 2.6-4
LOCAL ROUTING OPTIONS
SOUTHEAST OF CONRAD

GIS map by Ed Madej -TTEMI-HE Fig2_6-4_MATL_Southeast_Conrad_Routing_Option_121007.mxd

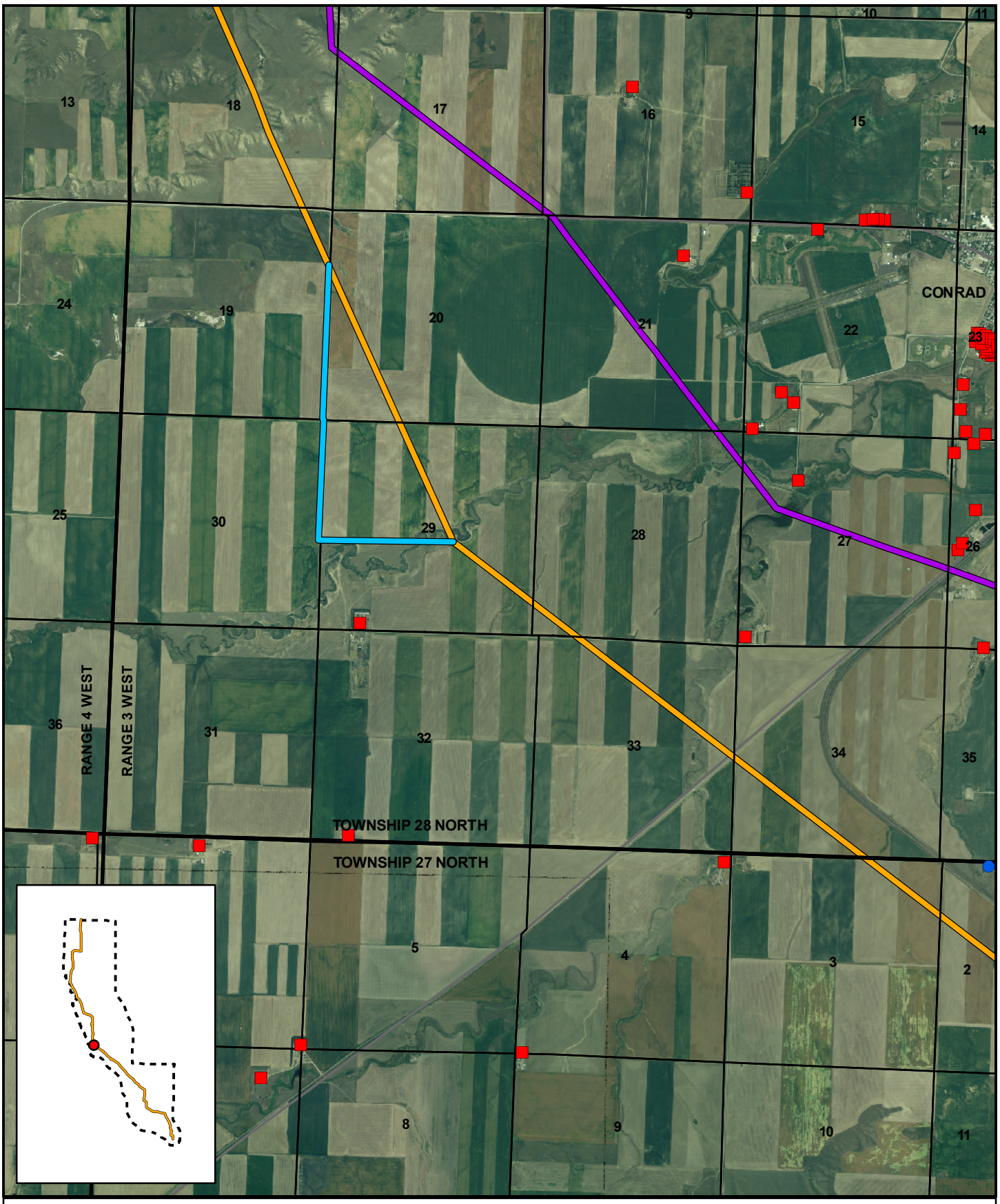


FIGURE 2.6-5
LOCAL ROUTING OPTION
WEST OF CONRAD

N

0 0.5 Miles

LEGEND

- ALT 2 - PROPOSED ALIGNMENT
- ALT 3 - ALIGNMENT
- WEST OF CONRAD
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE
- STUDY AREA BOUNDARY
- HOUSE
- GRAIN SILOS

GIS map by Ed Madej -TTEMI-HE Fig2_6-5_MATL_West_Conrad_Routing_Option_121007.mxd

However, it would still have some structures in mid-field locations. Cost of construction would be greater than Alternative 2. MATL has indicated a willingness to implement this small, Local Routing Option.

2.6.5 Northwest of Conrad

Northwest of Conrad a Local Routing Option would reduce diagonal crossing of farmland, increase placement of structures along field boundaries on both private and state land, and increase the use of private range and pasture land instead of cropland **(Figure 2.6-6)**. The Local Routing Option would decrease the amount of cultivated land crossed, thereby decreasing costs to farm around structures. The line length would increase by 0.1 mile.

2.6.6 Belgian Hill Area

The Belgian Hill Area Local Routing Option as presented in the Draft EIS **(Figure 2.6-7)** would have increased the distance from four residences in this area compared to Alternative 2. Alternative 4 through this area would use the north half of this Local Routing Option.

In comments on the Draft EIS, the agencies learned of plans to develop a center-pivot irrigation system in the vicinity of the Belgian Hill Local Routing Option described in the Draft EIS. As a result, the Local Routing Option has been revised (**Figure 2.6-7**). The Local Routing Option would remain about 0.5 mile from houses along Belgian Hill Road. However, it would increase the amount of cropland crossed by approximately 0.64 mile and add 0.50 mile of total line length compared to Alternative 2.

2.6.7 Bullhead Coulee Area

Two Local Routing Options were suggested by landowners in the Bullhead Coulee area **(Figure 2.6-8)**. One, the Bullhead Coulee South, approximately 4 to 7 miles north of the Valier Highway (State Highway 44), would avoid diagonal crossing of cropland and place the transmission line within a proposed wind farm. The landowner indicated turbines cannot be placed within 500 feet of the line. In Alternative 2 as proposed, a landowner could lose the opportunity of receiving annual payments from having a turbine located on his land. This routing option would allow placement of a wind turbine south of the line. Expected annual revenue from the turbine over the life of the line is estimated to exceed the additional cost of line construction. The turbine is part of a wind farm that has not signed agreements with MATL but plans to interconnect with another transmission line in the area.

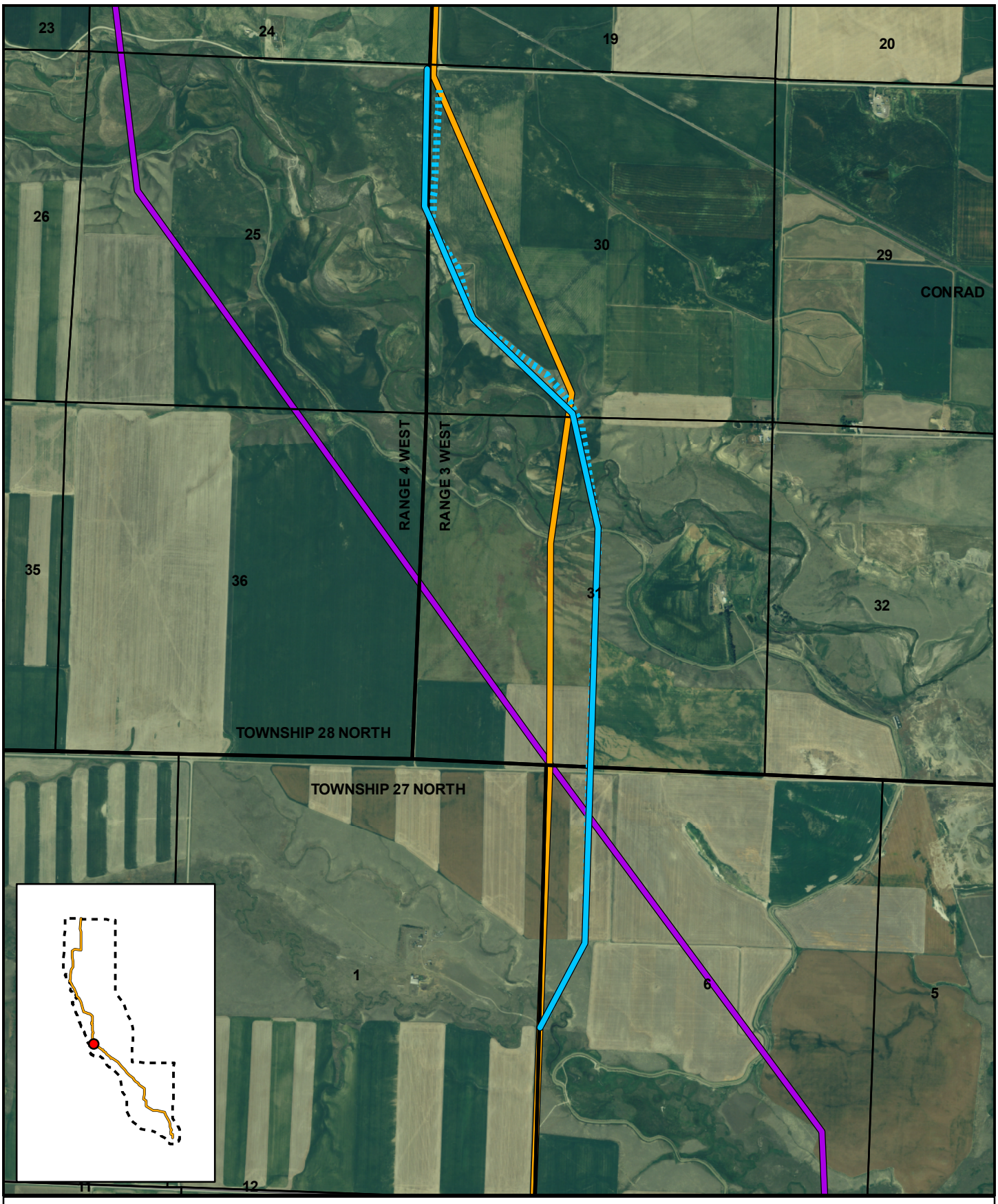


FIGURE 2.6-6
LOCAL ROUTING OPTION AND VARIATION
NORTHWEST OF CONRAD

GIS map by Ed Madej -TTEMI-HE Fig2_6-6_MATL_West_Conrad_Routing_Option_082808.mxd

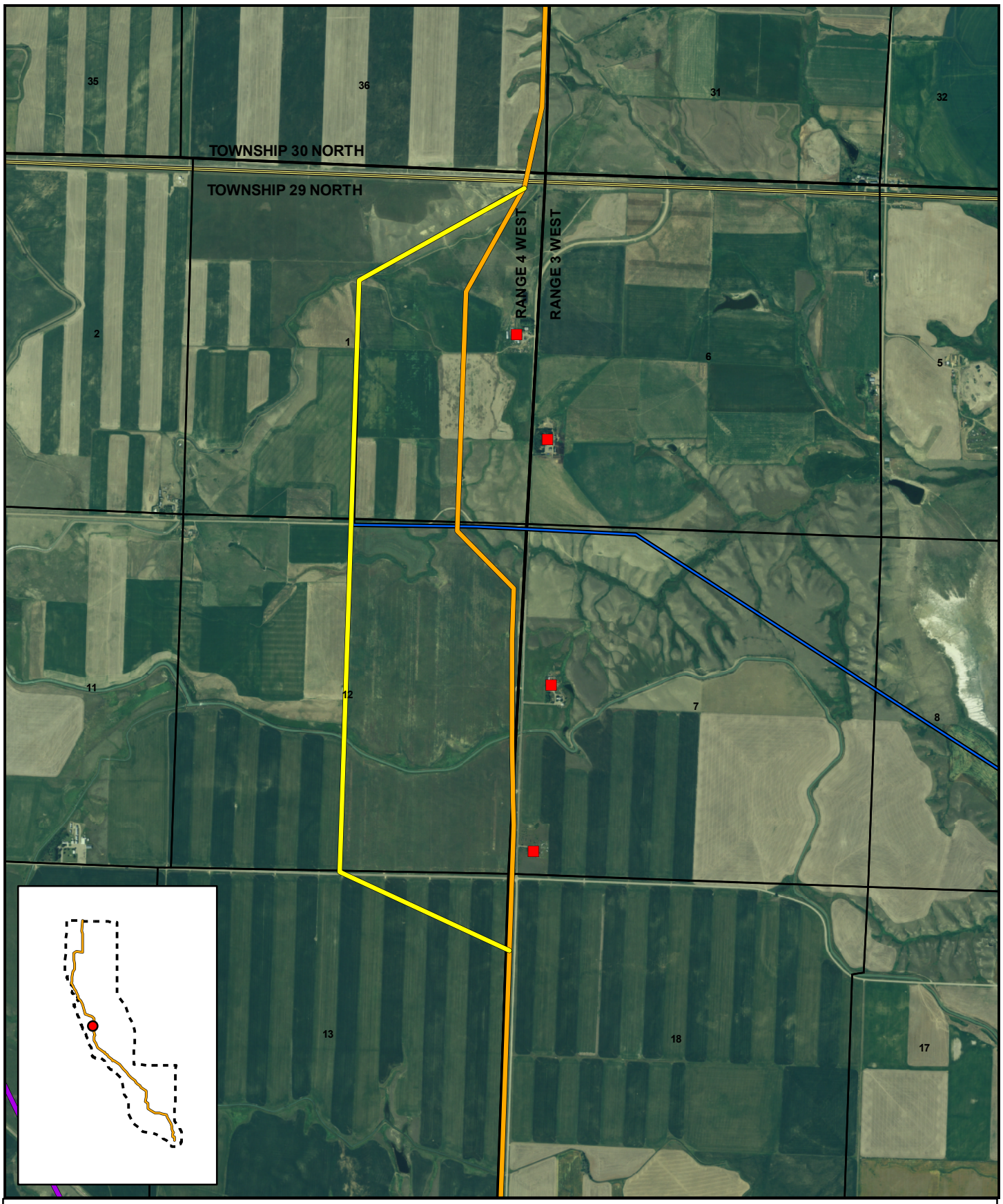


FIGURE 2.6-7
LOCAL ROUTING OPTION AND VARIATION IN THE BELGIAN HILL AREA

GIS map by Ed Madej -TTEMI-HE Fig2_6-7_MATL_Belgian_Hill_Road_Routing_Option_082807.mxd

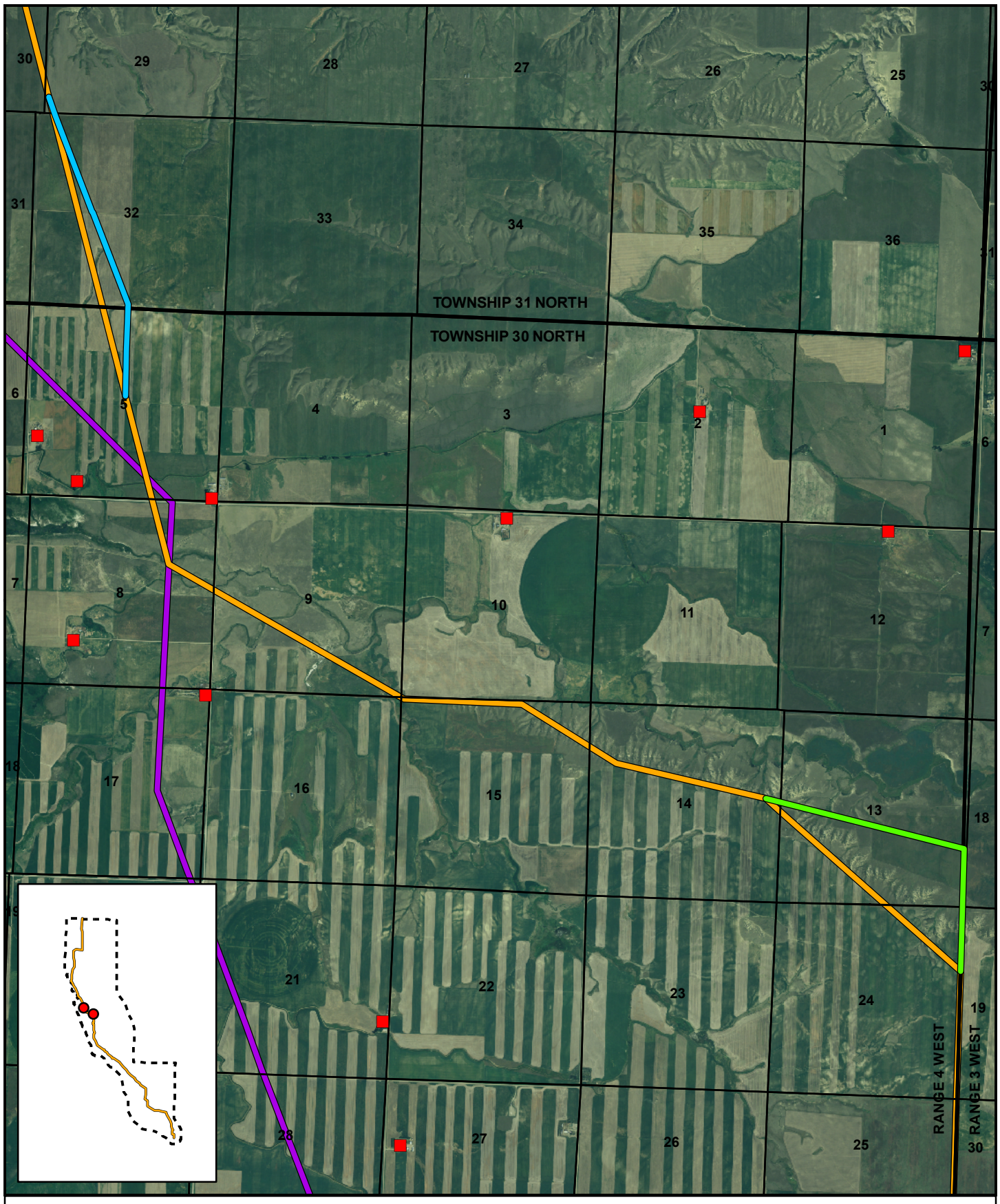


FIGURE 2.6-8
LOCAL ROUTING OPTIONS
BULLHEAD COULEE AREA

GIS map by Ed Madej -TTEMI-HE Fig2_6-8_MATL_Bullhead_Coulee_Routing_Options_121007.mxd

The Bullhead Coulee North Local Routing Option for Alternatives 2 and 4would reduce farming cost by placing more structures on field edges and has greater potential for landowner acceptance. Anticipated increased construction costs would be minimal.

2.6.8 South of Cut Bank

The South of Cut Bank Local Routing Option is shown in **Figure 2.6-9**. The agencies identified a minor variation for the south ¼ mile of the South of Cut Bank Local Routing Option that would eliminate several angle structures and keep the transmission line along the section line as indicated on **Figure 2.6-9.**

2.6.9 Great Falls 230-kV Switchyard Area

A variation to Alternative 2 was developed by MATL and two landowners north of the Great Falls 230-kV Switchyard to mitigate and minimize impacts to existing and future land uses in this area. The variation would apply to Alternative 2 for the first approximately 5.1 miles of the alignment north of the Great Falls Switchyard (**Figure 2.6-10**). It would also apply to Alternative 3 from approximately MP 3 to MP 5.1 where it shares the alignment with Alternative 2. The variation involves constructing approximately 4.3 miles of the line using monopole structures capable of supporting two 230-kV transmission lines (double-circuit 230 kV line construction). The remaining 0.8 mile, from MP 4.3 to MP 5.1 would remain a single-circuit H-frame construction but would be relocated across to the northwest side of Highway 87.

The minor variation would also involve moving the Alternative 2 alignment to the east side of the existing 115-kV line between MP 0.9 and MP 1.9. The existing distribution line would be removed between MP 1.4 and MP 1.9 to provide the room for MATL's 230-kV alignment. MATL would pay for the existing distribution line to be placed underground or for the construction of a new overhead distribution line, depending on the landowner's permission and preference.

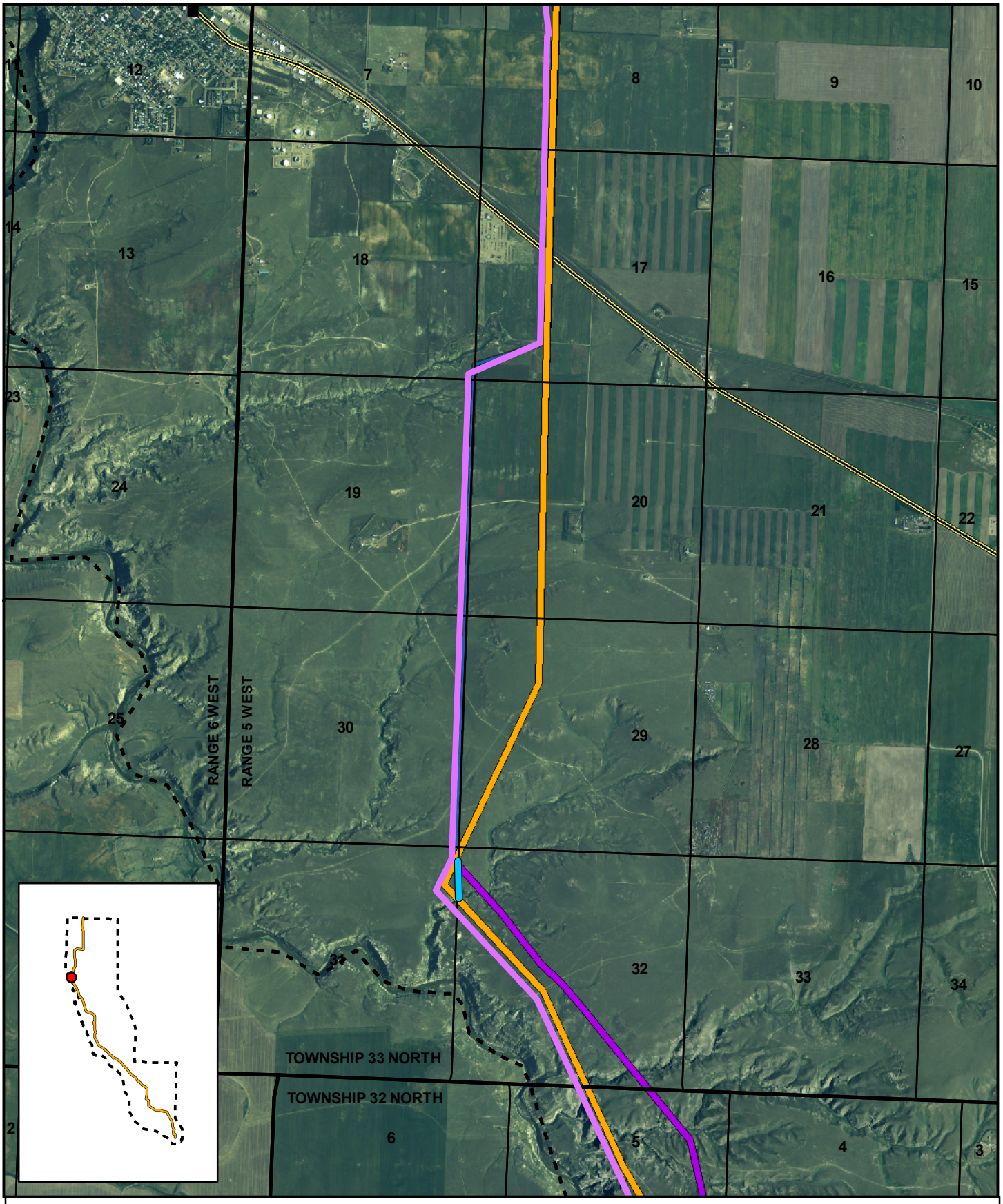


FIGURE 2.6-9
LOCAL ROUTING OPTION AND VARIATION
SOUTH OF CUT BANK

N

0 0.5 Miles

LEGEND

- ALTE 2 - PROPOSED ALIGNMENT
- ALT 3 - ALIGNMENT
- ALT 4 - ALIGNMENT
- SOUTH OF CUT BANK VARIATION
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE
- STUDY AREA BOUNDARY

GIS map by Ed Madej -TTEMI-HE Fig2_6-9_MATL_South_Cut_Bank_Routing_Option_082808.mxd

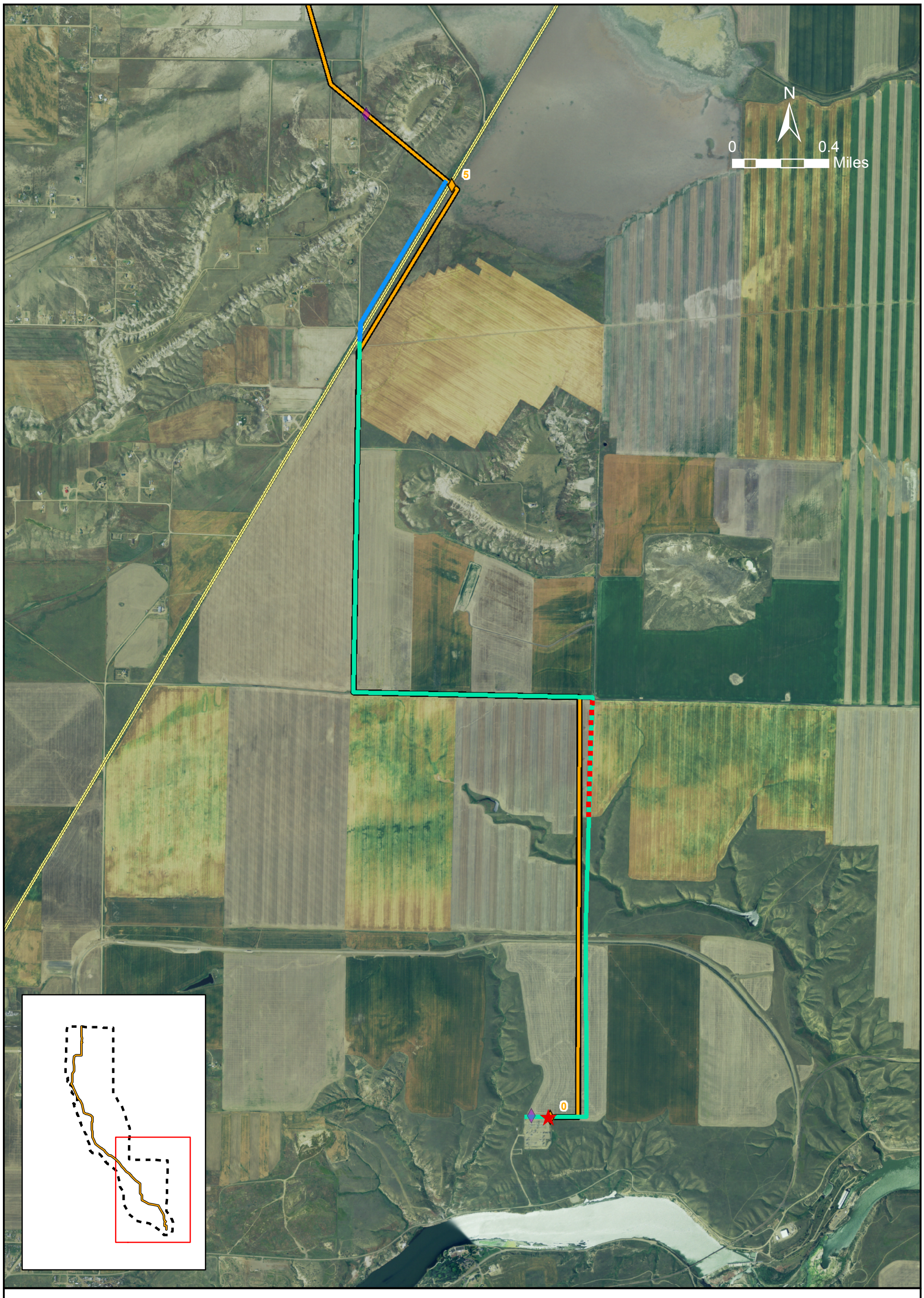


FIGURE 2.6-10
LOCAL ROUTING OPTION AND VARIATION
GREAT FALLS SWITCHYARD APPROACH

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- DISTRIBUTION LINE REMOVAL
- GREAT FALLS MONODOUBLE CIRCUIT
- GREAT FALLS SINGLE CIRCUIT H-FRAMES
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIIS map by Ed Madej -TTEMI-HE Fig2_6-10_MATL_GREAT_FALLS_SUB_082808.mxd

2.7 Agencies' Preferred Alternative

The preferred alternative consist of portions of Alternatives 2 and 4 as shown on **Figures 1.3-1, 1.3-2**, and **1.3-3**. The preferred alternative uses monopoles wherever cropland and lands enrolled in the CRP are crossed (approximately 83.6 miles of the 133.5 miles). The agencies selected the preferred alternative because it represents the best balance of avoidance of impacts to farmland, cost, avoidance of houses, public acceptance, paralleling existing corridors, and use of public lands.

Beginning at the Great Falls Switchyard at Milepost 0, the agencies' preferred alternative includes a 27.3 mile segment of Alternative 4 because it better avoids cultivated and CRP land than Alternative 2 (**Figure 1.3-1**). Compared to Alternative 2, this portion of Alternative 4 crosses 5.79 fewer miles of farmland, crosses 7.73 fewer miles of farmland diagonally, and has fewer nearby residences. Overall, this segment is 0.39 miles longer than the corresponding Alternative 2 segment and crosses 2.46 miles less state land. Much of this line segment parallels the WAPA 230 kV line that was sited during the 1980s to avoid cropland where possible.

From Milepost 27.3 to Milepost 31 the agencies' preferred alternative coincides with Alternative 2 (**Figure 1.3-2**). From Milepost 31 the preferred alternative follows the Diamond Valley South Local Routing Option as far as Milepost 39.2. While the Diamond Valley South option is 1.7 miles longer than the corresponding segment of Alternative 2, it better avoids diagonal crossings of farmland and better avoids houses. Compared to the Diamond Valley North Local Routing Option, it parallels fewer miles of field roads, better avoids a grain bin, and has two fewer crossings of NorthWestern Energy's 115-kV line.

At the crossing of the Teton River (Milepost 39.2) the agencies' preferred alternative incorporates the Teton River Local Routing Option because this crossing would remain higher above the river channel than Alternative 2, avoiding potential flood inundation, and largely remains along field edges north of the river.

Between Milepost 48.1 and Milepost 75.5 Alternative 4 is not preferred. Compared to Alternative 2 as modified by Local Routing Options, this portion of Alternative 4 is 5.33 miles longer, resulting in additional environmental impacts and construction and maintenance costs. This portion of Alternative 4 also crosses 1.05 miles of additional farmland. Although this portion of Alternative 4 crosses 11.09 fewer miles of farmland diagonally than under Alternative 2 as modified by the Local Routing Options, MATL has committed to working with landowners to place interior structures along field strip boundaries where the landowner farms in strips that are narrower than a full quarter section. About half of this portion of Alternative 2 could be located on range or on field strip boundaries. Finally, the agencies have modified Alternative 2 to require the same

use of monopoles wherever cropland and lands enrolled in CRP are crossed as required under Alternative 4.

From the Teton River the agencies' preferred alternative coincides with Alternative 2 as far as Milepost 56.2. Here, the preferred alternative uses the Southeast of Conrad Local Routing Option that locates the line on rangeland and field boundaries better than Alternative 2. From Milepost 59.2 to Milepost 69.3 the agencies' preferred alternative coincides with Alternative 2. Between Mileposts 69.3 and 72.2 the Northwest of Conrad Local Routing Option was selected because it better avoids crossing farmland diagonally by using the range and pasture land available in the area.

From Milepost 72.2 to approximately Milepost 74 (the beginning of the Belgian Hill Local Routing Option) the preferred alternative coincides with Alternative 2. From Milepost 74 to Milepost 76.8 the Belgian Hill Local Routing Option was selected to avoid close proximity to several houses.

Between Milepost 48.1 and Milepost 75.5 Alternative 4 is not preferred. Compared to Alternative 2 as modified by Local Routing Options, this portion of Alternative 4 is 5.33 miles longer, resulting in additional environmental impacts and construction and maintenance costs. This portion of Alternative 4 also crosses 1.05 miles of additional farmland. Although this portion of Alternative 4 crosses 11.09 fewer miles of farmland diagonally than under Alternative 2 as modified by the Local Routing Options, MATL has committed to working with landowners to place interior structures along field strip boundaries where the landowner farms in strips that are narrower than a full quarter section. About half of this portion of Alternative 2 could be located on range or on field strip boundaries. Finally, the agencies have modified Alternative 2 to require the same use of monopoles wherever farmland and lands enrolled in CRP are crossed as required under Alternative 4.

From Milepost 76.8 to Milepost 79.5 the agencies' preferred alternative coincides with Alternative 2 (**Figure 1.3-3**). From Milepost 79.5 to Milepost 81.2 the Bullhead Coulee South Local Routing Option was selected because, at the request of an affected landowner, it would allow construction of a wind turbine that would otherwise be precluded by Alternative 2.

From Milepost 81.2 to Milepost 85.5 the preferred alternative coincides with Alternative 2. From Milepost 85.5 to Milepost 87.2 the Bullhead Coulee North Local Routing Option was selected to reduce the amount of cropland crossed diagonally. From Milepost 87.2 to Milepost 100.5, the preferred alternative coincides with Alternative 2. The preferred alternative would cross BLM-owned land between Milepost 93.4 and Milepost 94.0. Beginning at Milepost 100.5 the preferred alternative uses the South of Cut Bank Local Routing Option because it would locate the line on field boundaries and better avoid a house without a large increase in line length. North of Milepost 103.1 the

preferred alternative coincides with Alternatives 2 and 4 to join with Canada's approved route at the border crossing.

Although Alternative 3 is the shortest route, north of Cut Bank it is not preferred because it does not join with Canada's approved route. South of Cut Bank, Alternative 3 was developed to closely parallel an existing 115-kV line that was built in the 1960s prior to passage of MFSA. Alternative 3 is not the agencies' preferred alternative in that area because it crosses more crop and irrigated land diagonally than Alternatives 2 and 4 and has little public acceptance or support.

2.8 Alternatives Considered But Dismissed

Several alignment and construction-detail alternatives were considered but eliminated from detailed study. A table listing these alignment alternatives is in **Appendix G**. Several additional alignment alternatives were provided in the MATL MFSA application (MATL 2006b). Alternatives considered but dismissed from further study, are discussed below, along with the rationale for dismissing them from further study. Other local routing alternatives that were evaluated by the agencies are discussed in **Appendix A**.

Possible Local Realignments Not Incorporated into Alternative 4

Alternative 4 was developed by DEQ to address public concerns regarding line interference with farming activities and close proximity to residences. It was developed by making changes to Alternative 2. During the development of Alternative 4, the agencies considered eight possible local realignments to Alternative 2 to address specific scoping issues.

The eight local realignments are described below as segments A1, A2, B1, B2, C1, C2, D, and E. They were developed to address issues raised in the following areas: just north of the Great Falls Switchyard (A1, A2), Diamond Valley area south of the Teton River (B1, B2), north of the Brady Frontage Road area (C1, C2), Belgian Hill (D), and south of Cut Bank (E). Only one segment from the "A", "B", and "C" realignments could be selected because they were developed to realign the same section of Alternative 2. For Alternative 4, the agencies included only segments A1, B2, C1, the north half of D, and E. The other realignments not incorporated into Alternative 4 were dismissed (A2, B1, C2, and the south half of D) because their ability to reduce impacts to farming and visuals were less than the retained segments.

Alternative 4 is described in Section 2.5. As discussed in Section 2.5, the agencies could select some or all of the segments included in Alternative 4 as mitigations to address land use and visual resource issues. All of the segment descriptions are included here

for information. The agencies' analysis of these segments and the information that helped in the selection of segments for Alternative 4 are included in **Appendix A**.

West Great Falls Realignment Segment A1 (Retained as part of Alternative 4)
Alternative segment A1 is an alignment that would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of farm land, where possible. Where Alternative 2 would go directly north out of the Great Falls Switchyard, segment A1 would take a west-northwesterly path out of Great Falls paralleling the railroad and WAPA 230-kV transmission line, making use of an existing transportation corridor. The segment A1 alignment would head west and then north along the railroad and rejoin Alternative 2 where it leaves 8th Road. Segment A1 is the only segment that would run south and west of Benton Lake National Wildlife Refuge.

Shooting Sports Complex Realignment Segment A2 (Eliminated from further consideration)
Approximately 1½ miles north of Great Falls, Alternative 2 would turn directly west for a mile and then run directly north along the west side of the Great Falls Shooting Sports Complex. Segment A2 is a 4.2-mile-long alignment that would continue directly north from Great Falls along the edge of cropland and parallel to the access road through the east side of the Great Falls Shooting Sports Complex. The alignment would parallel the existing 161-kV NWE transmission line between Great Falls and Havre. Segment A2 would rejoin Alternative 2 where it crosses Highway 87. This alignment would minimize crossing of farmland but would interfere with future building plans at the Shooting Sports complex.

Diamond Valley Right Angle Realignment Segment B1 (Eliminated from further consideration)
Segment B1 is a 5.9-mile-long alignment addressing the area in Teton County 2 to 5 miles south of the Teton River. In the headwaters of Kinnerly Coulee, segment B1 would run directly north where Alternative 2 turns northwest. After running directly north for approximately 2½ miles, segment B1 would turn directly west running approximately 3 miles until it would rejoin Alternative 2 in the vicinity of Hunt Coulee. This alignment did not adequately address local landowner concerns and was dismissed. The general intent this realignment to avoid diagonal crossing of farm land was incorporated into the new Diamond Valley Local Routing Option.

Diamond Valley and Teton River Realignment Segment B2 (Retained as part of Alternative 4)
Segment B2 is a 6.5-mile-long alignment that would diverge from Alternative 2 at the same location as segment B1. Where the segment B2 alignment intersects the Alternative 3 alignment and existing NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join Alternative 2 just south of the Teton River. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing.

Segment B2 would then cross the Teton River just east of the location described in Alternative 2. Segment B2 would address a landowner concern over opening a new corridor rather than paralleling an existing line which already has disrupted farming practices in some fields.

Diamond Valley Area

During initial scoping, landowner concerns in the Diamond Valley east of Dutton focused primarily on the amount of farmland crossed on the diagonal and the close proximity of residences. Following the March 2007 document, the agencies identified eight potential local realignments through this part of the Diamond Valley area based on comments and suggestions made by the landowners (**Figure 2.8-1**). Three of the realignments were retained for detailed consideration and are discussed in Section 2.6-1 as Local Routing Options Diamond Valley South, Diamond Valley Middle, and Diamond Valley North. Five potential local realignments were considered but dismissed for the reasons provided below.

The proposed realignments C, D, F, and G were not carried forward as potential subalternative realignments because they would not adequately address the landowner concerns about proximity of the line to residences, crossing farmland diagonally, and closely paralleling NWE's existing 115-kV transmission line. The east-west portions of potential local realignments F and G would be inadequate because they would result in structures being located mid-field. Local realignment J was not considered in detail because that realignment would be in close proximity to one residence and two sets of grain bins. The close proximity of a transmission line to grain bins can create safety hazards, especially during use of grain augers near the line. All five potential local realignments (C, D, F, G, and J) would have greater lengths compared to Alternative 2.

Alternative Teton River Crossing (Eliminated from further consideration)

The agencies examined a suggested alignment to cross the Teton River in the Northwest corner of Section 16. This alignment was eliminated from further consideration because it would cross a landslide feature where long-term slope stability is uncertain and would cross the Teton River at a low elevation bend that would be more prone to flooding compared to Alternative 2.

Brady Frontage Road Realignment Segment C1 (Eliminated from further consideration)

Segment C1 is a 15-mile-long realignment that would diverge from Alternative 2 approximately 8 miles southeast of Brady. Segment C1 would run directly west from the Alternative 2 along the northern edge of the Teton River valley and county road to the Interstate 15 frontage road, and follow the frontage road for about 11 miles, past the town of Brady to rejoin Alternative 2 about 2 miles north of Brady. Segment C1 would closely parallel the existing transportation corridor of Interstate 15 and the frontage road. Segment C1 could decrease crossing of farmland and avoid paralleling one pipeline, but still would roughly parallel a second pipeline.

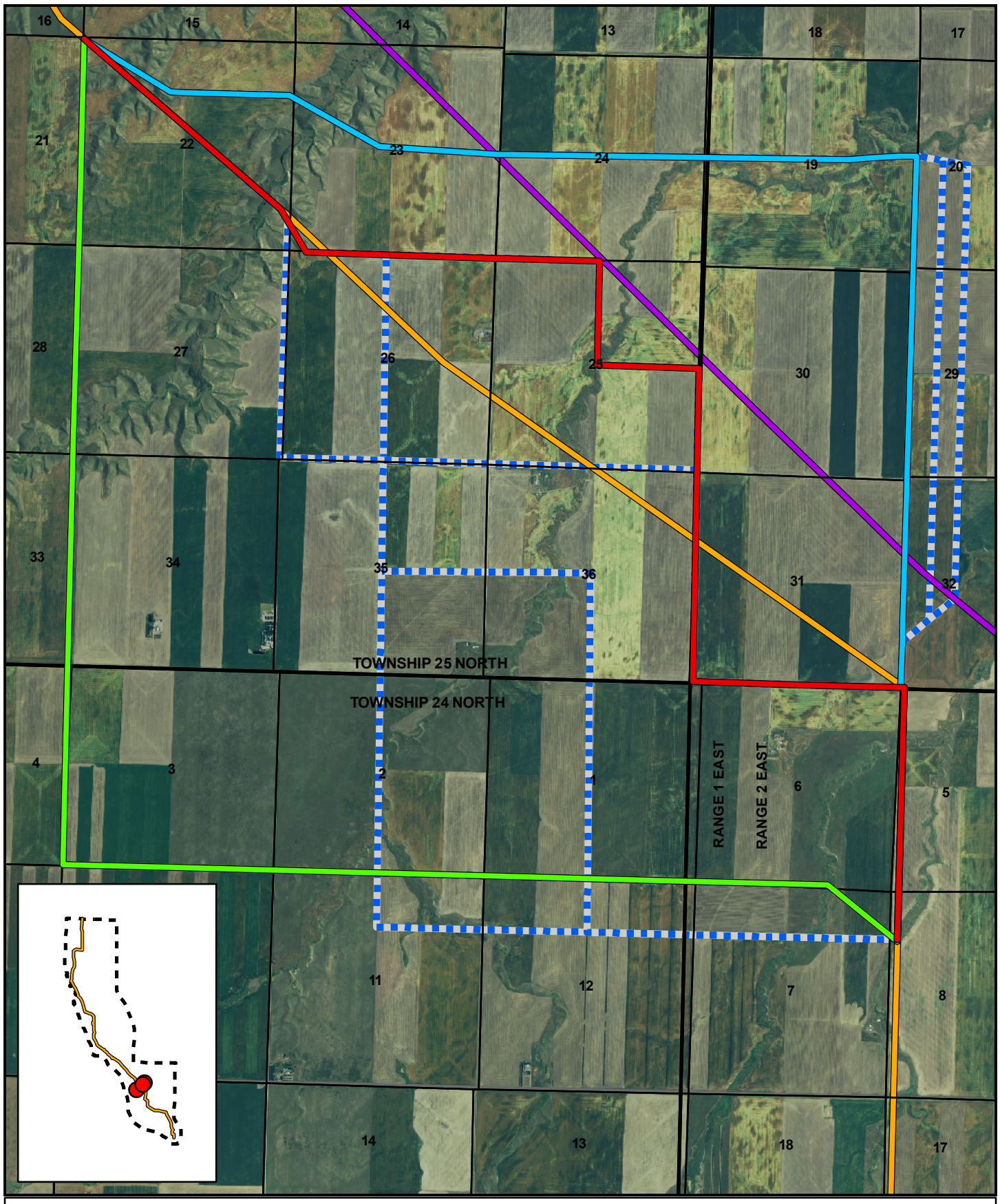


FIGURE 2.8-1
DISMISSED ALIGNMENTS IN DIAMOND VALLEY AREA

N

0 0.5 Miles

LEGEND

- ALT 2 - PROPOSED ALIGNMENT
- ALT 3 - ALIGNMENT
- DIAMOND VALLEY AREA
- DIAMOND VALLEY SOUTH
- DIAMOND VALLEY MIDDLE
- DIAMOND VALLEY NORTH
- DISMISSED ALIGNMENTS
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE
- STUDY AREA BOUNDARY

GIS map by Ed Madej -TTEMI-HE Fig2_8-1_MATL_Diamond_Valley_Dismissed_Alignments_082808mxd

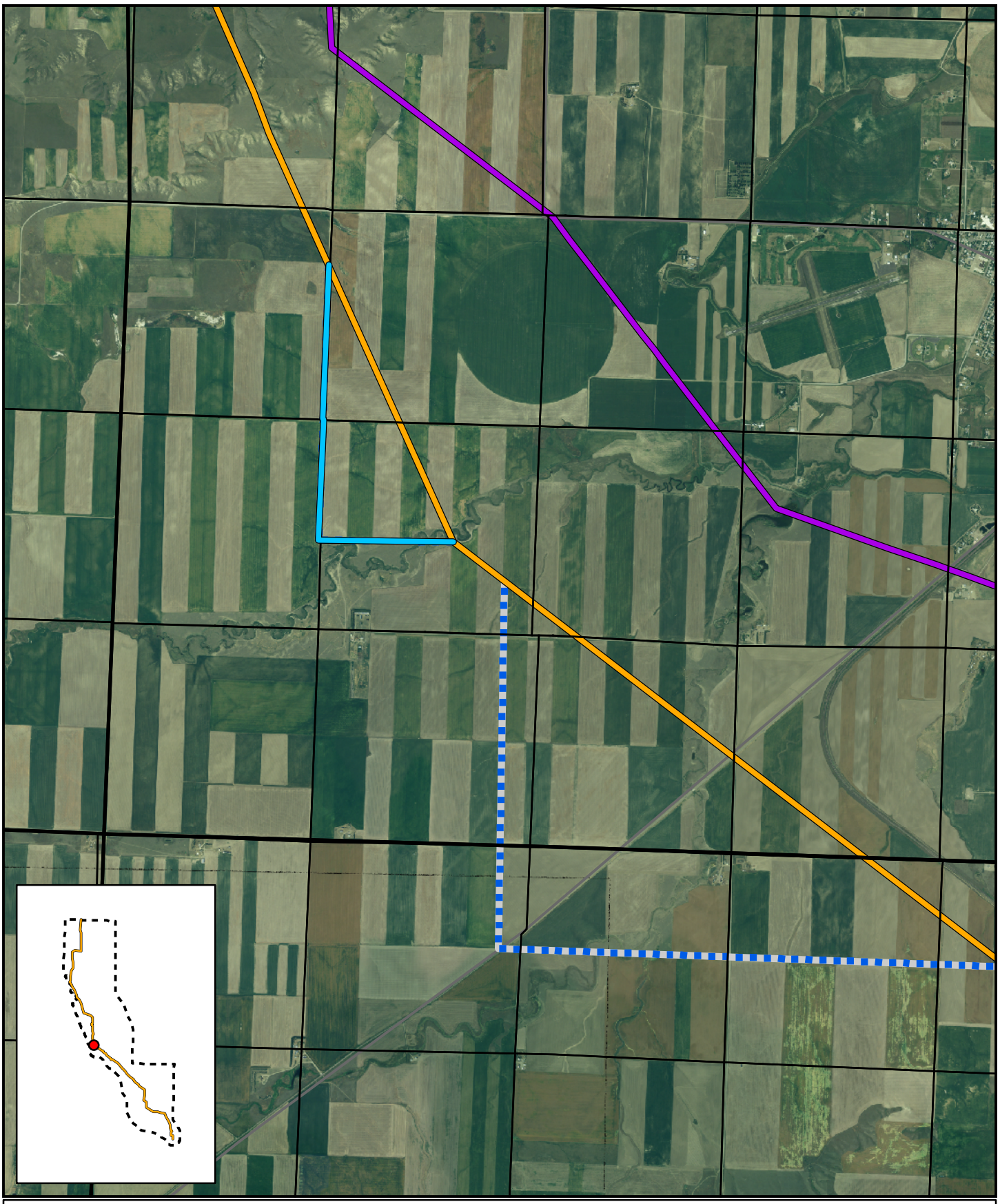
Conrad Realignment Segment C2 (Retained as part of Alternative 4)
Segment C2 is a 41-mile-long realignment that would diverge from Alternative 2 at the same location as segment C1. After approximately 3 miles running directly west, segment C2 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it intersects the river.

The alignment generally parallels the Dry Fork of the Marias until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn due west for approximately 1 mile before rejoining Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. This segment would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

West of Conrad (Not carried forward for further consideration)
One suggested realignment southwest of Conrad (**Figure 2.8-2**) would diverge from Alternative 2 near milepost 60 and would run west for about ½ mile and turn north for 2 miles. This realignment would reduce the amount of cultivated land crossed on the diagonal. The realignment would decrease potential mid-field interference with aerial crop dusting compared to Alternative 2 through this area, but would increase edge-of-field and some mid-field interference along the southern leg of this segment. The realignment would result in reduced farming costs to farmers due to structure locations along the edges of fields.

However, the cost of construction for the West of Conrad realignment would be greater than for Alternative 2. The additional construction cost would be greater than the cost savings to the farmers for this realignment. In addition, some local landowners expressed concerns about interference with crop dusters along this realignment.

Belgian Hill Realignment Segment D (North half retained as part of Alternative 4)
Belgian Hill Segment D was considered as mitigation for Alternative 2 and the north half was retained as part of Alternative 4. Segment D is a 2.8-mile-long realignment that would move the alignment slightly west from the Alternative 2 alignment for 2 miles, just north of Belgian Hill, farther away from four residences. The alignment would generally parallel Alternative 2. Segment D would result in greater potential for general local acceptance. This segment would reduce visual impacts. Some diagonal crossing of farmland would be required. This realignment has been replaced by the Belgian Hill Local Routing Option in this document.


N

Bullhead Coulee Area

Three local realignments (designated Bullhead Coulee B, D, and E on **Figure 2.8-3**) were suggested in the Bullhead Coulee area, approximately 4 to 7 miles north of the Valier Highway (State Highway 44). They would avoid crossing saturated soils at the Bullhead Coulee crossing and help minimize diagonal crossing of cropland. These Bullhead Coulee Area realignments B, D, and E were dismissed from further consideration because the estimated cost of line construction along these realignments would be five to six times greater than the estimated cost savings to farmers from locating the structures along field edges compared to within the field boundaries. In addition, realignment B would be located within ¼ mile of four residences.

South of Cut Bank Realignment Segment E (Retained as part of Alternative 4 and as mitigation for Alternative 2)

Segment E is a 2.5-mile-long realignment that would move the alignment approximately ¼ mile west for a 2-mile stretch, just south of the Alternative 2 intersection with Highway 2. Segment E would move the alignment to follow property boundaries better and results in greater potential for general local acceptance. It is 0.1 mile longer than Alternative 2. Segment E would generally parallel Alternative 2.

MATL C Alignment

MATL C was in the MFSA application (MATL 2006b). The alignment would be 136 miles long. The MATL C alignment would diverge more from the Alternative 2 proposed Project alignment than the Alternative 3 alignment and is the longest of the alignments MATL presented. The MATL C alignment would diverge from Alternative 2 at mile 7 to follow existing north-south and east-west state highway and county road rights of way. The MATL C alignment would continue north, change direction around the eastern side of Woods Crossing, and then go north for about 16 more miles. The MATL C alignment would then go west towards the town of Brady, south of which it would parallel Alternative 2, remaining about 2 to 4 miles east of Alternative 2. North of Conrad, MATL C would gradually move closer to Alternative 2 until joining it at Cut Bank. North of Santa Rita, the MATL C alignment would diverge from Alternative 2, heading northwest where Alternative 2 heads north, and cutting across Alternative 2 to head north where Alternative 2 heads east. The border crossing for MATL C is about 1 mile west of the Alternative 2 border crossing.

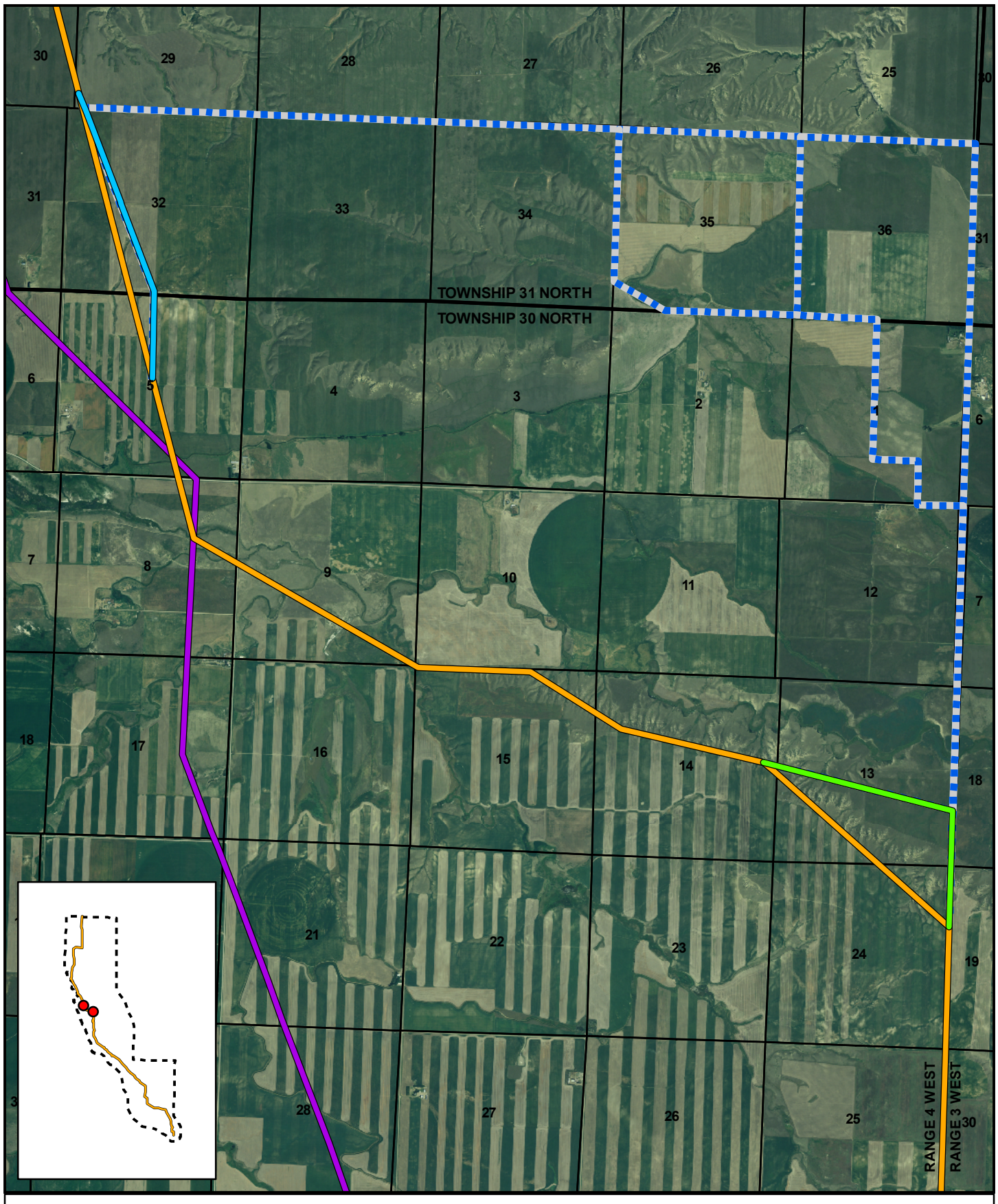


FIGURE 2.8-3
DISMISSED ALIGNMENTS IN BULLHEAD COULEE AREA

GIS map by Ed Madej -TTEMI-HE Fig2_8-3_MATL_Bullhead_Coulee_Dismissed_Realignments_082808.mxd

This alternative was dropped from further consideration because it did not fully address issues raised during scoping. Although it would reduce the total miles of diagonal crossing of farm land, compared to MATL's proposed alignment, MATL C would have crossed more farm land diagonally along the portion beginning south of Brady and continuing to approximately 10 miles north of Conrad. Use of the MATL C alignment would have impacts to visual resources from its alignment located very close to several residences. The MATL C alignment would not use as much range and pasture land, or parallel existing transmission lines as much as similar alignments developed by MATL and the agencies west of Great Falls. The Alternative 2 segment west of Great Falls would more closely parallel an existing transmission line than would the MATL C alignment.

Building the Line Underground

As discussed in Chapter 3, overhead transmission lines and associated support structures interfere with some land uses. Burying the line underground would reduce long-term visual impacts and may reduce long-term impacts for some land uses such as farming. Underground lines would still require ground disturbance. An underground line would be less susceptible to weather related outages.

Underground 230-kV lines would cost between 2 and 15 times the amount required to build an overhead line (Georgia Transmission Corporation 2006; Verbund 2006). Cost to build underground may be slightly more than $1 million per mile (Energy Central News 2007), compared with MATL's estimate of about $293,500 per mile using H-frame structures.

Digging trenches to bury the lines would result in greater construction disturbance to the land and would require greater time to install. Above ground access vaults would need to be constructed as well as above ground structures at line termination points. Buildings on the alignment would be restricted. Vegetation would likely have to be restricted to avoid reducing soil moisture that is needed to cool the transmission line. Problems with underground systems would also be more difficult to locate and repair. Studies indicate that magnetic strengths from power lines buried underground are similar to magnetic strengths for power lines above ground (NIEHS 1999).

Un-guyed, Self-Supporting Angle and Dead-End Structures

Changes in direction and dead-ends on a transmission line require additional support in the form of guy lines or bulkier self-supporting structures. Guy wires can increase interference with farm equipment and take additional land out of cultivation compared to non-guyed structures, resulting in increased land use impacts. Eliminating the use of guy lines would reduce some of the impacts on land uses. However, this alternative

was dismissed because of the higher costs for these self-supporting structures compared to guy wires.

Requiring the Use of Helicopters to String the Line

The use of helicopters could avoid construction of some access roads. Helicopters are most frequently used in extremely hilly terrain or large marshy areas where access is difficult. Using helicopters to string the conductors would create an additional expense. Using helicopters would not eliminate any of the work for the stringing crew, and it would not eliminate the installation of sheaves (pulleys used to string the line). Special sheaves would need to be purchased or rented so that the conductor and ground wires could be installed from the air. Access roads would still be needed for maintenance over the life of the line. This alternative was dismissed because most of the study area is accessible from the ground.

Requiring Monopole Structures in all Areas

A monopole design would reduce some interference with land uses that the H-frame design would have. The use of monopole support structures instead of H-frame structures for the entire length of the line was dismissed because of added costs with little additional land use benefits on rangeland. However, the use of monopoles is now proposed for 56 miles of cropland and CRP crossed diagonally under Alternative 2 and is also analyzed for all cropland and CRP crossings under Alternative 4 (89 miles).

Northwest Alternatives

Alignment selection from the U.S./Canada border to Cut Bank, approximately 25 miles south, required MATL to consider several alternatives. Alternative border crossing locations were dismissed based on routing conditions in Alberta. Alternative alignments between the border and Cut Bank were dismissed based on land use criteria such as: avoidance of occupied residences, an abundance of prairie pothole wetlands, and avoidance of Blackfeet Reservation land.

Eastern Alternative

MATL conceptually considered a Canada/U.S. border crossing near the Coutts/Sweet Grass Port-of-Entry along U.S. Interstate 15. Alignment alternatives considered in this vicinity would parallel Highway 4 from Lethbridge to Coutts/Sweet Grass, and roughly follow Interstate 15 from the border south to Shelby. This alignment would have afforded an opportunity to maintain infrastructure development in a common corridor, as well as avoiding protected lands in the Milk River Hills of southern Alberta.

South of Shelby, the eastern alternative would have traveled diagonally cross-country to the southeast for a distance of approximately 12 miles before heading directly south for almost the entire remaining distance to its tie-in at NWE's 230-kV switchyard north of Great Falls. Several factors contributed to MATL's dismissal of the eastern alternative including:

- In southern Alberta, the Eastern Alternative would potentially compromise the safety control system on the rail line that parallels Highway 4.
- Land development patterns in southern Alberta and in the Shelby area would necessitate the use of a stair step-like centerline resulting in increased distances and numerous angle structures requiring guy wires.
- The topographically rugged "breaks" of the Marias River are approximately 6 miles south of Shelby. The steep and highly eroded topography at this crossing location is relatively wide (approximately 6 to 7 miles) and would result in additional project costs to meet engineering challenges.
- The Marias River breaks area is relatively undisturbed, which has the potential for a greater number of archaeological sites.

Cut Bank to Shelby Alternatives

MATL would build the line to Cut Bank and then to Shelby and tie into WAPA's system there in order to complete a transmission path to Great Falls. In that way, energy producers or other subscribers that would need to move power south on the line would pay MATL a transmission tariff to get the power to Shelby and then would have to pay WAPA's tariff to move power from Shelby to Great Falls. WAPA's tariff of $2.69 per kW-month (kW/Mo.) would represent a substantial increase in the cost of transmission for users of the proposed line over paying the MATL tariff alone. MATL's varying tariffs on its line, which were bid by successful shippers in two open seasons, range from $3.01 kW/Mo. to $4.04 kW/Mo.[5]. These two rates together would almost double the total tariff in certain cases and would likely price most subscribers out of using the line. In addition, WAPA lines already have firm commitments for available capacity and can sometimes run at capacity due to system characteristics. Thus, the WAPA system does not provide the additional firm capacity offered by a separate MATL transmission line.

In a variation of this alternative, MATL and WAPA would cooperatively rebuild portions of the current WAPA Shelby-Great Falls 230-kV line, thereby creating a double circuit transmission line in certain parts of the path. WAPA cannot agree to this. A double circuit line would lower reliability for the operating system. The loss of one structure would affect both circuits. The loss of a structure on one of two parallel single

[5] *http://www.matl.ca/documents/Transmission%20requests%20July%2014,%2006.pdf*

circuit lines would affect just one circuit. WAPA also has reservations about building a parallel line in the same right-of-way as its Shelby-Great Falls route due to the potential for induced current between two lines located close to one another.

Besides the increased tariffs and decreased line reliability, these alternatives were dismissed because of operating limitations of WAPA's "West Control Area." These limitations are due to WAPA's lack of additional generation capacity reserves on its system that would be needed (as backup power sources) to support the wind projects proposed for the MATL project. The hydroelectric generators at Fort Peck Dam are the primary sources of these "regulating reserves" on the west system, and generation capacity is severely limited by the current drought conditions and resultant stream flow limitations.

NWE 115-kV Transmission Line Rebuild Alternative

Combining MATL's transmission line with NWE's existing 115-kV line would minimize potential environmental impacts. With that impetus, MATL considered rebuilding and updating, as necessary, NWE's existing 115-kV transmission line between Cut Bank and Great Falls and engaged in discussions with NWE regarding its feasibility. This rebuild alternative proved prohibitive based on the logistics of maintaining service while the line was being rebuilt and upgraded and the economics associated with a partnership and existing line rebuild.

3.0 Affected Environment and Environmental Impacts

Information in this chapter describes the relevant resource components of the affected environment. Only resources that could be affected by the alternatives, or that could affect the alternatives if implemented, are described. Data and analyses in these sections correspond with the importance of the impact and with concerns raised during the scoping process. The following resource areas are in this chapter: land use and infrastructure, geology and soils, engineering and hazardous materials, electric and magnetic fields, water, wetlands, vegetation, wildlife, fish, threatened and endangered species, air quality, noise, socioeconomics, cultural resources, visuals, and the transmission grid. Section 3.18 summarizes the findings DEQ would make in determining whether to certify the project under MFSA.

The location and extent of the affected environment for the alternatives depend on the resource under evaluation. If approved, the transmission line would be constructed within a 500-foot wide zone, 250 feet on each side of a center line specified in the Certificate of Compliance. For most resources, the affected environment analysis area for the transmission line is the 500-foot-wide zone for each alternative. Where affected environment resource analysis areas extend beyond the zone, the extended area is described at the beginning of the resource area section, and in many cases corresponds to MATL's study area (MATL 2006b) shown in **Figure 1.1-1**.

After the affected environment for each resource has been described, the impacts of the Project and alternatives are discussed, including the direct and indirect impacts, and short-term and long-term impacts. Short-term impacts are defined for this project as those that would take place during the construction phase. The construction phase is expected to last six months. Long-term impacts are defined for this project as those that would take place during the operation and maintenance of the line. The cumulative impacts for each resource are discussed in Chapter 4. Chapter 4 also includes a discussion of unavoidable adverse impacts and irreversible and irretrievable commitments of resources. The text includes descriptions for impacts and resources relevant to identified issues of concern (Section 1.5.2).

3.1 Land Use and Infrastructure

This section describes the human use of the land for economic production, and for residential, recreational, or other purposes.

3.1.1 Analysis Methods

Quantitative analysis of the number of miles included in a transmission line alignment and the associated number of acres and land use is based on Geographic Information System (GIS) analysis of the action alternatives. Assumptions needed for GIS analysis include:

- Existing land uses were developed from interpretation of orthophotographs (aerial photographs with distortion removed) taken in 2005 (USDA National Agriculture Imagery Program [NAIP] 2005). Some land uses may have changed since the photographs were taken. **Appendix H** lists land use by milepost for each alternative.
- Existing ownership information was developed from county plats and other sources. Information is believed to be accurate and up to date. However, some recording errors may have occurred, or lands may have been sold since the GIS information was developed.

Analysis Area

The analysis area for land use and infrastructure is the study area defined in MATL's permit application (MATL 2006b). Detailed analysis was conducted along the proposed centerline and alternatives.

Information Sources

Data and information for this section were compiled and refined from several sources including, but not limited to, computer assisted mass appraisal (CAMA), GAP Analysis data, and photographic interpretation and other sources. MATL verified this information by ground reconnaissance during July and August 2005. In addition, MATL contacted Federal, state, and local regulatory personnel by telephone and in person to validate existing information and to solicit additional information. This information was included in the MFSA application (MATL 2006b).

DEQ also verified land use information in the summers of 2006 and 2007 by:

- conducting a field reviews of the alignments from Great Falls to the U.S.-Canada border;

- verifying physical features and land uses along portions of the alternatives by driving along the alignments, recording observations, and taking periodic Global Positioning System (GPS) readings; and
- overlaying the alignments on 2005 orthophotographs (USDA NAIP 2005) and documenting visible land uses by milepost (**Appendix H**).

The land uses documented included: mechanically irrigated cropland, non-irrigated cropland, rangeland/pasture land, forest, residential, existing rights of way, riparian habitat, and water. Information was generally mapped at a scale of 1:24,000.

Information describing the existing transportation and utility networks was obtained from the MFSA application (MATL 2006b) or from Mr. Jim McDonald, Teton County road foreman. Details regarding farm tractors and tillage equipment were obtained from an interview with Mr. Bruce Broesder, service warranty writer for Torgersons, Inc. in Great Falls, and timelines for planting and harvesting were obtained from Mr. Sherwin K. Smith, Executive Director of the Teton County Farm Service Agency in Choteau. Mileages were measured using GIS.

3.1.2 Affected Environment

The following land uses and ownership categories are described in this section:

- Cities, towns, unincorporated communities,
- Developed residential, industrial, and commercial areas adjoining cities and towns,
- Federal and state highways and county roads,
- Railroads and railroad rights of way,
- Existing electric transmission lines,
- Communication facilities,
- Military installations,
- Conservation easements,
- Public and private airports,
- National trails,
- Farmland differentiated by irrigated cropland, mechanically irrigated cropland, non-irrigated cropland, rangeland/pasture land, and conservation reserve program (CRP),
- Mines, and
- Land ownership categories (Federal, state, tribal, private).

Land Ownership

Figures 3.1-1, 3.1-2, and **3.1-3** show land ownership in the south, middle, and north parts of the analysis area. **Table 3.1-1** summarizes the proportion of land ownership and jurisdiction within the analysis area (Montana Natural Resource Information System [Montana NRIS] 2006a). The majority (89.7 percent) is privately owned, with the remainder owned or managed by state, Federal, and local government agencies. A discussion of public land management, relative to facility siting, is provided below.

TABLE 3.1-1
LANDOWNERSHIP AND JURISDICTION WITHIN ANALYSIS AREA

Ownership	Percent of Analysis Area
Local Government	0.3
Private	89.7
Right-of-way	0.6
State Government	6.7
Tribal	0.0
Undetermined	0.0
U.S. Department of Agriculture	0.0
U.S. Department of Defense	0.1
U.S. Government	0.0
U.S. Department of Agriculture Forest Service	0.0
U.S. Department of the Interior Bureau of Land Management	1.5
U.S. Department of the Interior Fish and Wildlife Service	0.5
Water	0.5
Total	100.0

Source: Montana NRIS 2006a

Land Use Categories

Land use categories described in this section are: residential, commercial and industrial, agricultural, publicly managed, and conservation easements.

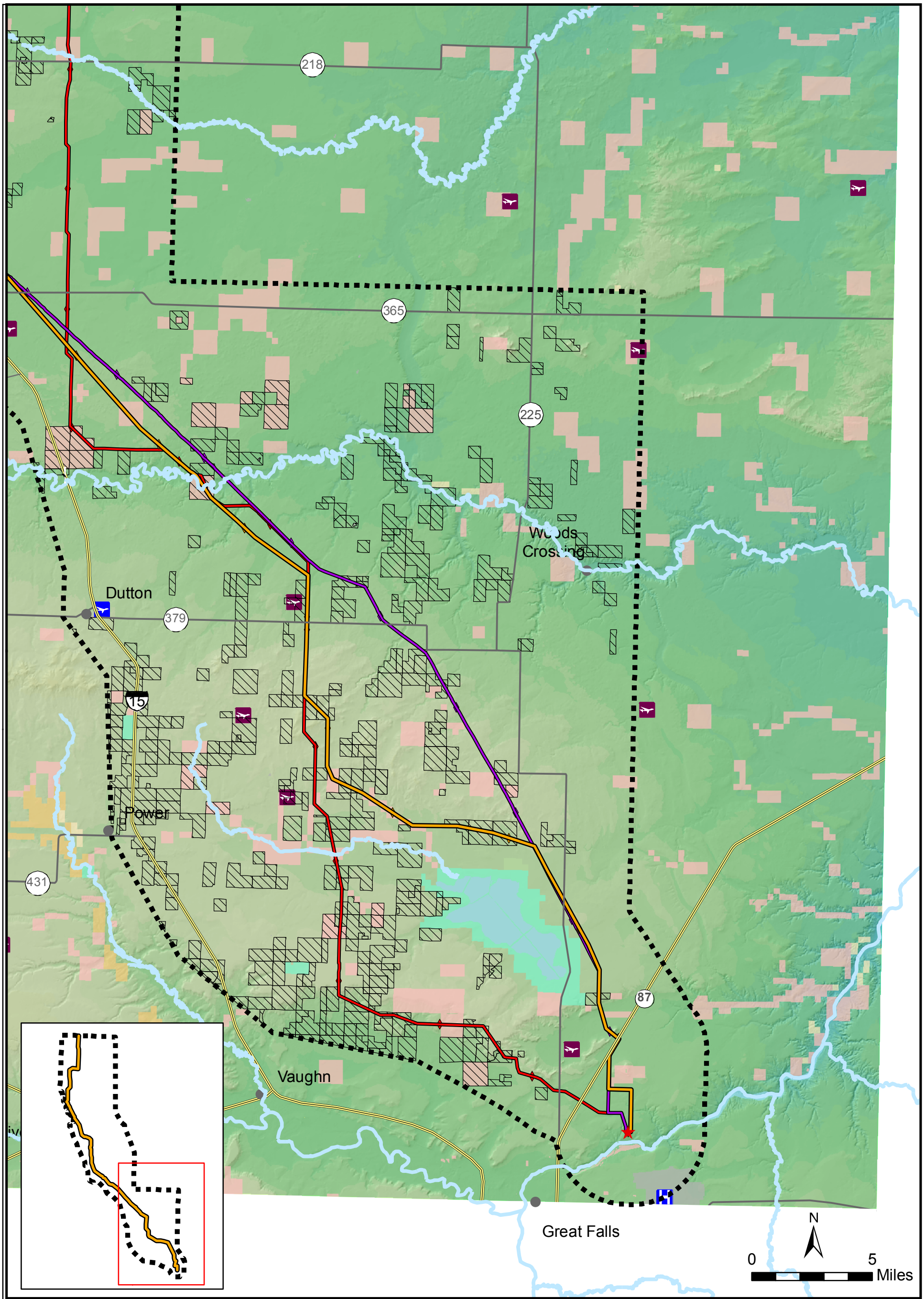


FIGURE 3.1-1
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
SOUTH

LEGEND

Ownership
- Conservation Reserve Program
- Tribal
- State Government
- US Department of Agriculture
- US Department of Defense
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- US Government - Other
- Water (NHD)

- Paved Public Airport
- Unpaved Public Airport
- Private Airstrip
- Heliport

- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS

- ALIGNMENT END AND EXIT POINTS
- RIVERS AND STREAMS
- CITIES AND TOWNS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS

GIS map by Patricia Williams -TTMTI 3-1-1-LandUseAnalysisArea-South.mxd

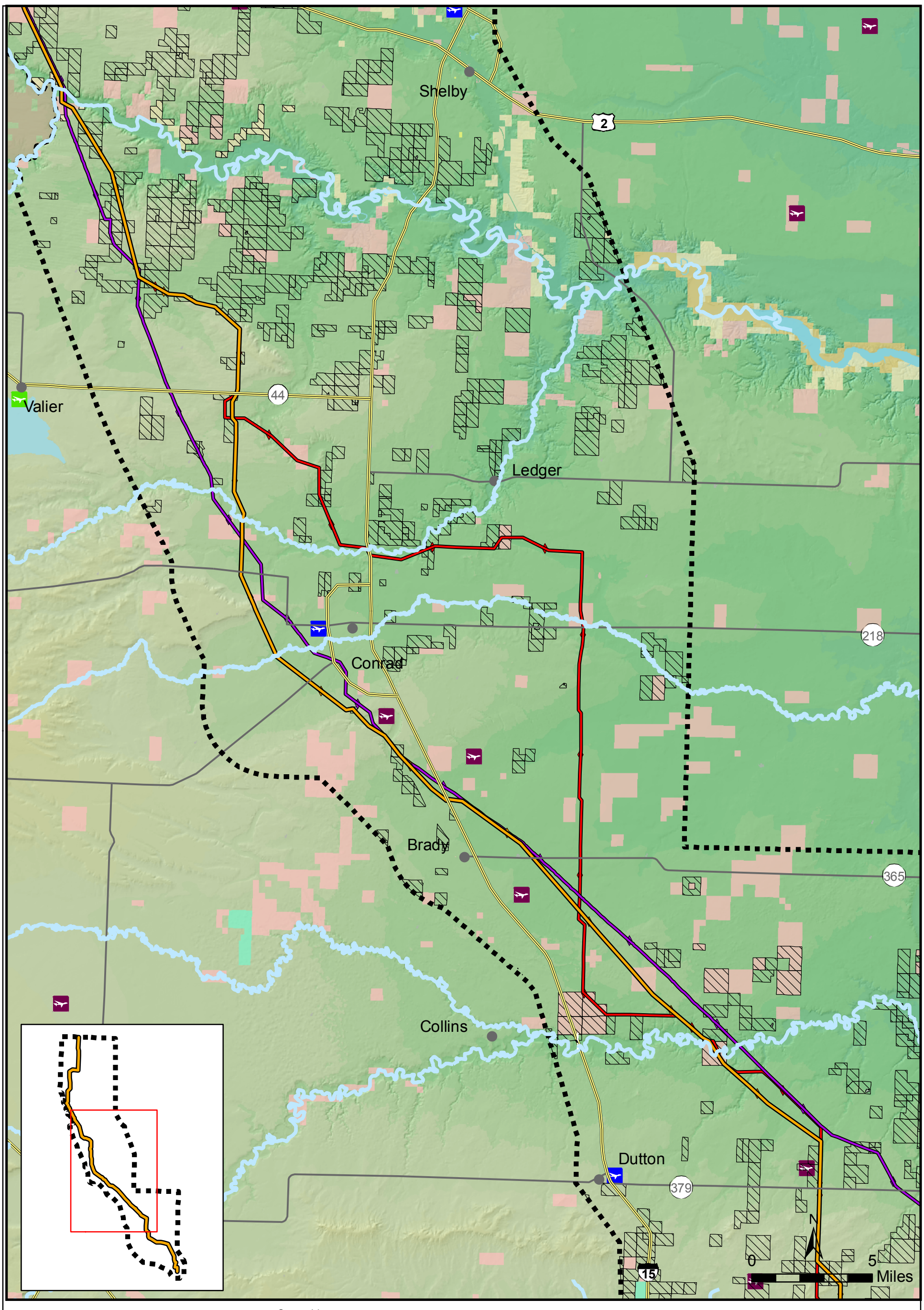


FIGURE 3.1-2
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
MIDDLE

LEGEND

Ownership
- Tribal
- State Government
- US Department of Agriculture
- US Department of Defense
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- US Government - Other
- Water (NHD)
- Conservation Reserve Program

- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

- Paved Public Airport
- Unpaved Public Airport
- Private Airstrip
- Heliport

GIS map by Patricia Williams -TTMTI 3-1-2-LandUseAnalysisArea-Middle.mxd

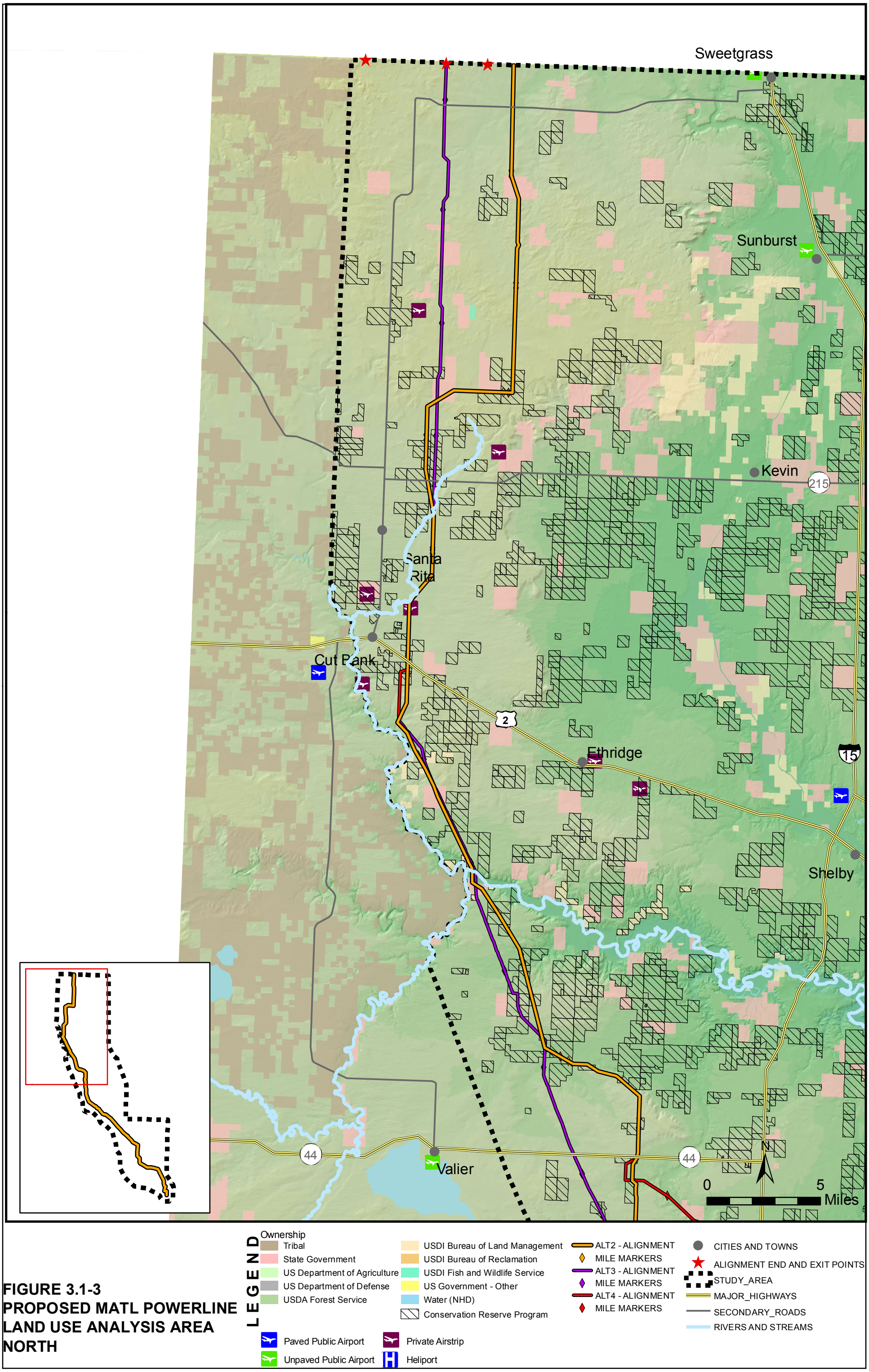


FIGURE 3.1-3
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
NORTH

GIS map by Patricia Williams -TTMTI 3-1-3-LandUseAnalysisArea-North.mxd

Residential
Residential land use in the analysis area includes cities, towns, colonies, residential clusters (for example, unincorporated subdivisions), and dwellings (for example, farm or ranch houses). In addition, several Hutterite colonies are located in the analysis area. Cities and towns in the analysis area are:

- Great Falls and Black Eagle, in Cascade County,
- Power and Dutton, in Teton County,
- Conrad and Brady, in Pondera County,
- Shelby, Sunburst, and Sweetgrass, in Toole County, and
- Cut Bank, in Glacier County.

With the exception of Cascade County, no land use zoning rules currently apply in the analysis area and no planned subdivisions are currently proposed for future construction in analysis area portions of Glacier, Toole, or Pondera counties (Yeagley 2006). In the Cascade County portion of the analysis area, there are no planned subdivisions (MATL 2006b). In Teton and Chouteau counties, there is no zoning and there are no planned residential developments in the analysis area (MATL 2006b).

Commercial and Industrial
Commercial and light industrial activities (linear/point facilities) in the analysis area include communication facilities (cellular telephone and microwave), oil and gas production, surface mining (gravel pits), airstrips (public and private), railroads, pipelines and transmission lines, roadways, and military installations (MATL 2006b, Connel 2007). Primary concentrations of communication sites occur in the vicinity of Great Falls, Shelby, and Cut Bank, although individual facilities are distributed throughout the area. Existing commercial and industrial businesses within the study area were identified based on parcel information in the CAMA database.

Oil and gas production facilities occur primarily in the northern half of the analysis area and consist of wells, pump and compressor stations, collector and transmission pipelines, meter stations, industrial or processing plants, and product storage tanks, both above and below ground (MATL 2006b). Most oil and gas facilities are associated with production and processing of natural gas or propane, though approximately one-third are associated with crude oil (MATL 2006b).

There are several public and private airports or airstrips in the analysis area. Public airports include those associated with the towns of Sunburst, Shelby, Conrad, and Dutton (MATL 2006b).

Agricultural

Of the 1,444,790 acres in the analysis area, approximately 1,277,000 acres (88 percent of the analysis area) are considered agricultural lands, including irrigated and non-irrigated cropland and rangeland. **Table 3.1-2** summarizes the proportion of different agricultural land uses in the analysis area. Agricultural lands are almost entirely on privately owned land; however, some dry land crops and grazing occur on public lands in the analysis area.

Irrigated croplands include those using flood, pivot, wheel and hand line irrigation systems. Crops grown on irrigated fields in the region are typically hay and alfalfa. Non-irrigated crops are predominately drought resistant cereal grains (MATL 2006b).

TABLE 3.1-2
AGRICULTURAL LANDS IN THE ANALYSIS AREA

Farmland Use	Percent of Farmland[a] in Analysis Area
Irrigated Cropland	4.2
Dry Land Crops	68.7
Grazing	26.9
Wild Hay or Alfalfa	0.1

Notes:

[a] Percentage is based on the percent of parcels where all or a portion of the parcel is in the analysis area. Some parcels may indicate irrigated acres, but those acres may occur outside the analysis area. The "farmland use" category is associated with the parcel, but the location of the type is not mapped within the parcel.

Source: USDA NAIP 2005

Management of agricultural lands can involve the use of DGPS-guided farming equipment and vehicles and other equipment used for irrigation, aerial and ground based spraying, plowing, seeding, fertilizing, and harvesting. Some ground based spraying equipment has "booms" extending 45-75 feet on either side. These activities occur on 73 percent of the farmland in the analysis area.

Publicly Managed Land

The overall Project area contains about 10 percent public lands (**Table 3.1-1**). Of these public lands, most are managed by the DNRC, FWP, BLM, and FWS (**Figures 3.1-1, 3.1-2**, and **3.1-3**).

The State of Montana has jurisdiction over 97,318 acres within the analysis area, the majority of which is under jurisdiction of DNRC as school trust parcels. These Montana state trust lands are administered and managed for the benefit of the public schools and the other endowed institutions under the direction of the Montana State Board of Land Commissioners. The Real Estate Management Bureau of DNRC's Trust Land

Management Division is responsible for processing applications for rights of way and easements across surface lands and navigable waterways administered by the state.

FWP manages several wildlife management areas, fishing access sites, and other wildlife and recreation areas.

The primary Federal agencies with lands within the analysis area are the BLM and FWS. BLM managed land is located in scattered parcels throughout the northern half of the analysis area (**Figures 3.1-1, 3.1-2**, and **3.1-3**). Right-of-way permits for crossing U.S. BLM managed land are managed by the BLM Lands and Realty office and approved following the appropriate Resource Management Plan compatibility assessment and NEPA review process.

The FWS has management authority of the Benton Lake National Wildlife Refuge, located approximately 10 miles north of Great Falls. FWS also manages three waterfowl production areas (WPA) in the analysis area, one located approximately 6 miles west of Benton Lake, one located approximately 12 miles northwest of Benton Lake, and one located approximately 15 miles northeast of Cut Bank (**Figures 3.1-1, 3.1-2,** and **3.1-3**).

The analysis area also contains several properties owned by the U.S. Department of Defense (**Figures 3.1-1, 3.1-2,** and **3.1-3**). The use of such properties is managed by Malmstrom Air Force Base (CAMA 2006).

Final siting of the transmission line on public lands would require MATL to obtain permits from state or Federal agencies for rights of way or easements, and would likely require compatibility assessments with these agencies to ensure that localized alignment decisions are made in accordance with the relevant management plans.

Conservation Easements

Within the analysis area are private lands managed under conditions detailed in conservation easements held by both FWS and the USDA Farm Service Agency. FWS holds 37.545 acres of wetland easements on some private land in the northern portion of the analysis area. Approval to locate facilities within areas managed under wetland easement by FWS is determined by a compatibility review process that takes into account proposed facility location and access relative to wetland avoidance on the parcel under easement.

FWP currently holds the Lewis and Clark Heritage Greenway Conservation Easement on about 2,400 acres owned by PPL Montana adjacent to the southern boundary of the analysis area. The purpose of the easement is to protect and enhance the open space, natural, and visual resources, when consistent with hydropower production and power

transmission activities. The switchyard in which all alternatives would terminate is located on the northern edge of the easement.

The Farm Service Agency holds CRP easements on several thousand acres in the analysis area (**Figures 3.1-1, 3.1-2,** and **3.1-3**). CRP contracts between the Farm Service Agency and private landowners typically preclude agricultural activities on land managed under the program. Facility siting on CRP contracted land requires a compatibility review by the Farm Service Agency to determine a facility's potential impact to the CRP status of the affected property. Haying and grazing of CRP acreage are authorized under limited conditions (USDA Farm Service Agency 2006):

- Managed haying and grazing are authorized no more frequently than 1 out of every 3 years after the CRP cover is fully established. CRP participants requesting managed haying and grazing are assessed a 25 percent payment reduction except when conducted in an "emergency" area.
- Emergency haying and grazing of CRP acreage may be authorized to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.

Existing Roadway Network

Highways and roads in the analysis area are listed in **Table 3.1-6** and include:

- Federal and state highways
- Paved secondary state highways and county roads
- Improved county roads
- Unimproved roadways

Interstate 15 runs west from Great Falls to Vaughn and then north to the farming communities of Power, Dutton, Brady, and Conrad, and then to Shelby and the border crossing at Sweet Grass. At Cut Bank the proposed power line would cross U.S. Highway 2, the primary east-west highway along the Hi-Line. North of Great Falls, the proposed power line would cross U.S. Highway 87. The analysis area includes 124 miles of Interstate 15.

There are numerous secondary roads in the analysis area including paved Federal and state highways and improved (paved) county roads. These roadways run east-west (for example, MT 219 from Conrad to Pendroy) and north-south (for example MT 214 from Cut Bank north to Santa Rita and beyond). There are 86 miles of Federal and state highways in the analysis area.

Improved county roads are primarily gravel roadways that serve rural residents. These roadways, in conjunction with improved secondary roads, provide the transportation infrastructure for ranchers and farmers in the Project area. These roads are vital to rural residents for uses such as hauling grain and cattle and moving large tractors and farming implements. Unimproved roadways are those two-track roads that provide the farmer or rancher with access to and within their owned or leased land. There are approximately 2,346 miles of improved and unimproved county, city, and local roads in the study area.

With the exception of Interstate 15, U.S. Highways 2 and 87, and some sections of the secondary road system, the basic road infrastructure in the study area has changed little in the last 40 to 50 years. Federal and state highways have load restrictions specific to length, width, height, and weight of the transported load. Any exceedance of these criteria requires a single trip permit from MDT.

Most of the county roads have 24-foot-wide graveled driving surfaces (McDonald 2006). Some road shoulders and county bridges may not be suitable for heavy loads (McDonald 2006).

Railroad Facilities
The Burlington Northern and Santa Fe Railway northern tier mainline generally parallels U.S. Highway 2 through the project area from Shelby to Cut Bank. A north-south line runs from Great Falls through Power and on to the border at Sweet Grass (MATL 2006b). Two branch lines, one to Choteau and another to Valier serve the agricultural producers in those areas. There are 171 miles of railroad in the analysis area.

Pipeline Facilities
Many existing pipelines serve the oil and gas producers traversing the project area. These include large natural gas pipelines up to 20 inches in diameter (Cut Bank to Warm Springs pipeline) and many small pipelines serve the oil fields around Conrad, Cut Bank, and Shelby. Many small (4- to 6-inch-diameter) lines from the oil fields near Cut Bank converge at "tank hill" where crude oil is collected for subsequent delivery to refinery facilities such as Montana Refining in Great Falls. Most of these lines run north-south on the western edge of the project study area with one pipeline running east-west (MATL 2006b).

Aircraft Facilities
Small unmanned airports are located near the towns of Conrad, Shelby, and Cut Bank. Private airstrips are located throughout the study area serving owners and aerial applicators that serve the agricultural producers.

Other Utilities
When MATL identified its proposed Project alignment in the MFSA application, all pipelines and transmission lines were located so that MATL could avoid placing structures on them. Telephone companies do not have detailed comprehensive databases or maps of buried telephone lines that can be accessed for this application process. MATL would finalize structure and location with owners of these facilities.

Future Land Use

During scoping, several landowners provided information of planned uses within the analysis area. These include:

- Wind farms
- Additional ranges and a first responder training center at the Great Falls Shooting Sports Complex
- Future conversion to cropland of some lands enrolled in the CRP.

No specific time lines were provided for these activities.

3.1.3 Environmental Impacts

3.1.3.1 Alternative 1 — No Action

Under the No Action alternative, the transmission line would not be constructed. There would be no additional impacts on land uses, including farming, DGPS, irrigation, crop dusting, production costs, livestock control, or other activities, from transmission lines. Land uses in the area would remain similar to what they are now. Some wind farms that subscribed to the MATL facilities during the transmission open season may not be built.

No impacts would occur to transportation and utilities if the No Action alternative were selected. Current levels of infrastructure use would be maintained.

3.1.3.2 Alternatives 2, 3, and 4 — Action Alternatives

Ground Disturbance

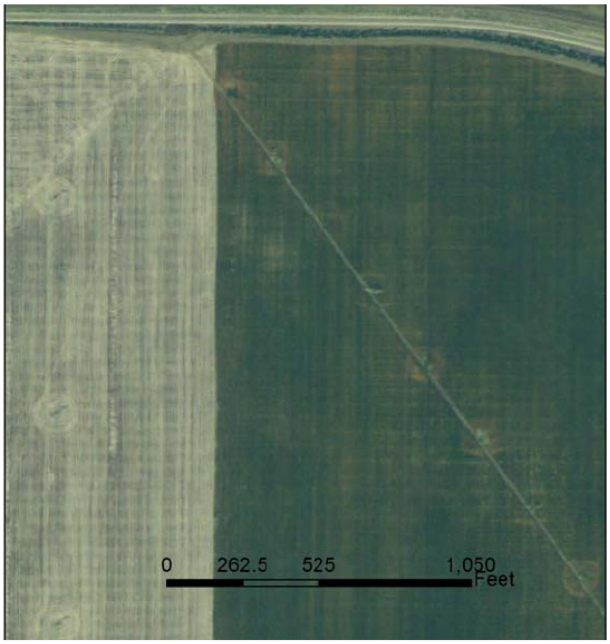
Estimates of total ground disturbance from construction activities would be approximately 330 acres under Alternative 2, 315 acres under Alternative 3, and 348 acres under Alternative 4. The total acreage of construction disturbance would be more than that for operational disturbance. Construction disturbance would be of varying

intensity, with most areas, such as staging areas, requiring reseeding. All areas of disturbance would require noxious weed monitoring and possible weed treatment.

Interference with Farming

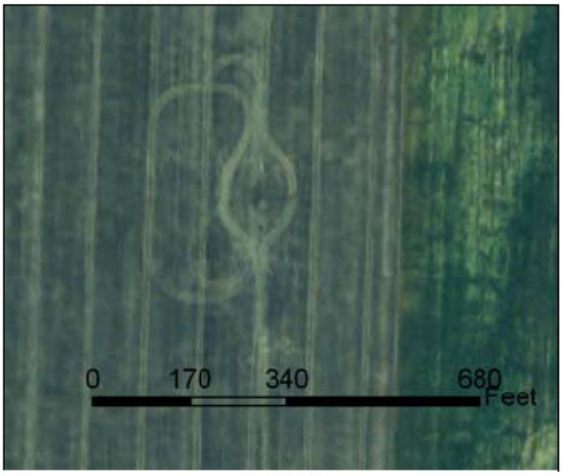
Considerable concern has been expressed by farmers whose land would be crossed by the transmission line. They have identified concerns related to a loss of production, more effort and expense required to farm around transmission line structures, interference with a few mechanical irrigation systems, acreage that cannot be farmed due to the structures, guy wires, and access roads, and the introduction of weeds. **Appendix H** contains land uses by milepost for each alternative.

Mechanical irrigation, automated farming methods, farming equipment with large spans (up to 144 feet) for fertilizer, pesticide, and herbicide application, cultivation, harvesting, and crop dusting would all be affected by support structures. These effects could be substantial for an individual operator. Farming equipment continues to become larger and more automated while crops become more "high tech" requiring more precise application and timing of pesticides and fertilization. Farmers run the risk of costly damage to their equipment if it strikes a structure. Depending on the location, farming method, and type of structure, areas would be taken out of production around the base of support structures, and the support structures would be in the way of all equipment (see aerial/orthophotographs below). MATL would compensate farmers for increased production costs and has completed a method for calculating production costs. **Section 3.13** contains information on the additional cost of farming and estimated compensation.



H-Frame on edge of field then diagonal crossing

Structures located near the edge of a field may prevent equipment from reaching the edge of the field (see photographs).

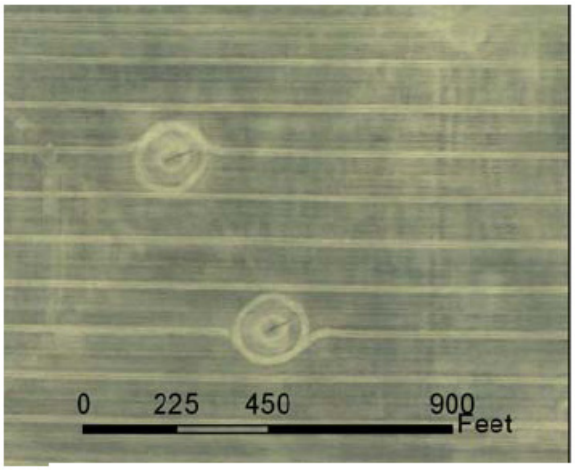


Farming around H-frame

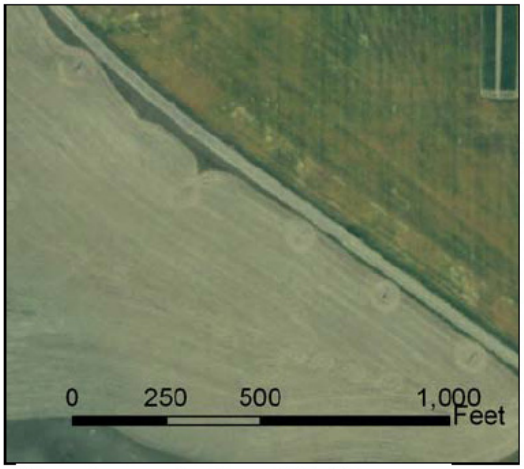
When crossing a cultivated field is necessary, effects may be minimized by placement of H-frame structures in a north-south or east-west orientation, where the poles are parallel to the rows, avoidance of diagonal field crossings, use of monopole structures in the place of H-frames, and placing structures on the edges of fields.

The worst case scenario for loss of production area is siting H-frame structures diagonally or perpendicularly to rows and structures set close enough to the edge of a field so that farm equipment cannot fit between the structure and the edge of the field (see photograph).

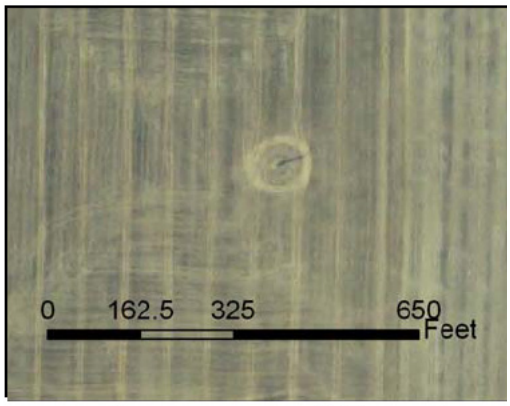
Production costs would increase as farmers have to divert their equipment around structures; make additional passes; take additional time to maneuver equipment; skip areas; or reseed, retreat, or refertilize areas. The efficiency of some large, DGPS-guided equipment would be adversely affected.



Farming around H-frame



Structures at edge of field



Farming around Monopole



Monopole along road adjacent to fields

In conducting the analysis summarized in **Table 3.1-3**, the proposed and alternative alignments were overlaid onto the 2005 orthophotographs (USDA NAIP 2005) and photographic interpretation was used to document the land use on the alignments. **Appendix H** provides a milepost by milepost interpretation of land uses along each alignment, organized into eight land use types: (1) irrigated cropland, (2) non-irrigated cropland, (3) rangeland/pastureland, (4) road and railroad, rights-of-way, (5) residential, (6) forest, (7) riparian, and (8) water. **Table 3.1-3** shows the miles of crossings parallel, perpendicular, and diagonal to irrigated, non-irrigated, and range fields along the alternative alignments.

Based on the miles of transmission line that would cross irrigated and non-irrigated cropland at a diagonal, Alternative 2, with 54.9 miles of diagonal crossings would interfere with farming less than the Alternative 3 which has 67.7 miles of diagonal crossing. In total, irrigated cropland would be crossed in any direction by 1.1 percent of Alternative 2 (1.4 miles) and 2.8 percent of Alternative 3 (3.3 miles). Twenty-five percent of Alternative 2 (32.8 miles) crosses rangeland, compared to almost 19 percent of Alternative 3 (22.5 miles).

Alternative 4 was developed by DEQ, in part, to reduce the impacts on farming from the proposed transmission line. Alternative 4 has fewer miles of the alignment crossing non-irrigated cropland at a diagonal (27.9 miles versus 54.8 miles in Alternative 2 and 64.7 miles in Alternative 3). Alternative 4 crosses 0.1 mile of irrigated cropland at a diagonal, Alternative 2 also crosses 0.1 mile of irrigated cropland at a diagonal, and Alternative 3 crosses 3.0 miles.

Following the development of the alternatives, several agency-proposed local realignment segments were identified to reduce the number of miles of farmland crossed diagonally, to reduce the total number of miles of farmland crossed, and to reduce the acres removed from farm production by structures. These segments and the quantitative effects on these factors are displayed in **Appendix A**. Others identified are described in Section 3.16.

TABLE 3.1-3
TYPES OF LAND USE CROSSED BY ALTERNATIVES 2, 3, AND 4 (MILES)

	Alternative 2				Alternative 3				Alternative 4			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Irrigated cropland	1.3	0.0	0.1	1.4	0.3	0.0	3.7	3.4	1.2	0.4	0.1	1.7
Non-irrigated cropland	33.7	3.4	54.8	91.9	26.7	0.5	64.7	91.9	47.7	11.2	27.9	86.8
Rangeland	7.0	1.7	24.0	32.7	7.7	0.2	14.6	22.5	8.9	5.2	33.7	47.8
Road/ Right-of-way/ Railroad	0.5	1.0	0.9	2.4	0.3	0.2	1.3	1.8	0.4	0.3	0.6	1.3
Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Forest	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1
Riparian	0.6	0.0	0.8	1.4	0.2	0.0	1.6	1.7	0.8	0.1	1.0	1.9
Water	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Miles	43.2	6.2	80.6	129.9	35.4	0.9	85.4	121.6	59.0	17.2	63.4	139.6

Notes:

[a] parallel to north and south (±5° due north or south).

[b] perpendicular to north and south (±5° due east or west).

[c] diagonal to due north, south, east, or west.

Sources: Orthophotographs 2005 (USDA NAIP 2005); NRIS 2000; MATL 2006b; field verification; photographic interpretation (**Appendix H**).

Subtotals and totals may differ in tenths of a mile from actual sums due to Microsoft Excel rounding procedures for different functions.

Land Removed from Production

Table 3.1-4 compares how many miles of transmission line cross CRP land or cropland under each alternative. For the purposes of this analysis, the area removed from cropland production or CRP was assumed to be 5 feet from the structure in any direction. Actual losses could be greater, for example, if a structure is located so close to the edge of a field that equipment could not maneuver between the structure and the edge of the field. Likewise, if structures are located at the edge of a field and parallel to the cropping pattern, actual losses could be minimal. For double-pole H-frame support, the base area (1.5 feet by 23.5 feet) with 5 feet added to all sides would remove 0.0088 acre (385.25 square feet) from production per structure.

Alternative 4 would require the use of monopole structures in all areas where the transmission line would cross CRP land or cropland. Monopole structures require less of a footprint for each structure. Monopoles would remove .0049 acre from production because of their 6.5-foot-wide concrete foundations (plus 5 feet on either side).

TABLE 3.1-4
ACRES OF PRODUCTION IN CRP OR CROPLAND AFFECTED BY H-FRAME OR MONOPOLE STRUCTURES IN ALTERNATIVES 2, 3, AND 4[a]

	Alternative 2	Alternative 3	Alternative 4
Miles of Monopole Crossing CRP or Cropland	56	0	88.9
Number of Monopole Structures[b]	370	0	587
Acres CRP or Cropland Removed from Production by Monopoles	1.81	0	2.88
Miles of H-Frame Crossing CRP or Cropland	40.3	95.2	0
Number of H-frame Structures on CRP or Cropland[c]	266	628	0
Acres CRP or Cropland Removed from Production by H-frame structures[c]	2.34	5.53	0
Total Acres of Cropland and CRP Removed from Production	**4.15**	**5.53**	**2.88**

Notes:

[a] MATL has provided a range of estimated disturbance for various structures and construction details as plans for the transmission line have progressed (MATL 2006b as amended in May 2008 and June 2008). Analysis was based on conservative estimates of area disturbed by the transmission line construction and structures.

[b] Monopoles would be set on average 800 feet apart (6.6 structures per mile).

[c] H-frames would be set on average 800 feet apart (6.6 structures per mile).

Sources: Orthophotographs 2005 (USDA NAIP 2005), NRIS 2000, MATL 2006b; field verification; photographic interpretation (**Appendix H**)

During construction and line maintenance, short-term disruption of farming activities along the alignment could occur. Locating structures and access roads in previously disturbed areas, or in areas where agricultural practices have already been modified, would minimize long-term impacts along the alignments. Environmental protection measures listed in **Table 2.3-4** would be implemented to reduce potential impacts on land use due to erosion, soil compaction, and noxious weeds.

Interference with Crop Dusters

Experienced crop duster pilots are capable of avoiding conductors and structures by flying over, under, or around them, although additional passes may be required and coverage near power lines may be spotty. Nationwide in 2005, there were 90 agricultural aircraft accidents investigated by the National Transportation Safety Board (2006). Of those, 14 included a power line, guy wire, or static wire as a contributing factor (two were fatal). Five of the accidents involved helicopters and the remainder involved airplanes. One was a helicopter that started to crash and hit a power line on the way down. None were in the Project area or in Montana.

Alternatives 2 and 3 are similar in the number of miles of transmission line that cross CRP and cropland (93.3 and 95.2 miles, respectively). Alternative 4 would cross the least amount of CRP and cropland (88.9 miles). Potential impacts would be mitigated as crop dusters would be informed of the transmission line, and maps would be provided prior to and upon completion of the MATL line.

Interference with DGPS-Guided Farming Equipment

Under Alternatives 2, 3, and 4, potential interference could occur to certain types of DGPS systems installed in farm equipment (EPRI 2000). MATL proposes the following measures to address problems with DGPS interference:

- MATL would support upgrades to improve the DGPS system's resistance to interference. Specifically, physically shielding the DGPS antennae from electromagnetic interference, where practicable, would alleviate interference. Another potential solution would be to upgrade the unit to be compatible with the Wide Area Augmentation System (WAAS). WAAS provides a more extensive coverage area and is less susceptible to signal interference. WAAS augments DGPS with additional signals for increasing the reliability, integrity, accuracy, and availability of DGPS (MATL 2006b).

WAAS has an accuracy specification that results in a horizontal accuracy of better than 5 meters. This accuracy would be helpful for DGPS-guided equipment.

Livestock Control and Gates

Issues related to controlling livestock and gate closure were raised during scoping. In response, all action alternatives include environmental protection measures to ensure gates are installed, closed, and maintained as needed to control livestock and public access in coordination with affected landowners. Although not 100 percent effective, these measures would reduce problems caused by unauthorized access or gates being left open.

Conservation Easements and Special Management Areas

Linear miles of lands under Federal and State special management and those lands currently under Federal or State conservation easements (wetland easements, CRP, and FWP easements) that would be crossed by the 3 alternatives are summarized in **Table 3.1-5**. Alternatives 2 and 3 would cross state-owned lands on the edge of the Great Falls Shooting Sports Complex, while Alternative 4 would avoid the complex completely.

TABLE 3.1-5
MILES OF FEDERAL/STATE LAND AND SPECIAL MANAGEMENT AREAS AND CONSERVATION EASEMENTS CROSSED

	Alternative 2	Alternative 3	Alternative 4
Montana FWP-owned Land (Great Falls Shooting Sports Complex) [a]	0.73	0.51	0.0
Montana FWP Easement (north side of Great Falls Switchyard) [a]	0.12	0.10	0.10
Montana State Trust Land (DNRC) [a]	10.62	5.91	11.03
Conservation Reserve Program (CRP) [a]	23.61	3.76 (Wetlands) 14.33 (CRP)	1.7 (Wetlands) 30.77 (CRP)
BLM-owned Land [b]	0.29	0.14	0.29

Sources: [a] Montana State Library, Montana Natural Heritage Program, January 17, 2007.
[b] Montana Cadastral/CAMA data, November 2007.

Residential Developments

Alternatives 2 and 4 each have one residence within 100 feet of the edge of the alignment and Alternative 3 has four. The right-of-way width for the transmission line is 105 feet wide. Impacts on residences are primarily noise and visual quality and are discussed in those sections.

Planned Land Use

Alternatives 2, 3 and 4 cross through Glacier, Pondera, Teton, Toole, and Cascade counties. All of these counties have adopted a comprehensive land use plan. Cascade County is the only county in the Project analysis area with zoning regulations.

According to the November 15, 2006, version of the Cadastral GIS coverage for Cascade County, there do not appear to be any subdivisions planned or existing in the path of Alternative 2 or 3 alignments. Alternative 4 would cross the planned Kyles Addition subdivision just north of Great Falls from mileposts 2.12 to 2.26. No residences have been constructed in this subdivision but the land is subdivided and platted.

Right-of-way Restrictions

Farming and other activities are permitted on transmission line rights-of-way provided that they do not interfere with line operation and maintenance or create safety problems for workers or others. Landowners may be restricted from constructing buildings or conducting other activities that would interfere with line operation.

Pipelines

Pipelines are discussed in Section 3.3 and Section 3.4.

Transportation

Highways and Roads

The Federal, state, and county roads that would be crossed by each alternative are listed in **Table 3.1-6**, along with the milepost reference. MATL would follow environmental protection measures, described in Chapter 2 and **Appendix F**, to minimize impacts when crossing local access roads and highways. Some minor additional use of roads and highways would occur during construction of the transmission line. Effects would be short term.

Traffic Levels

Agriculture dominates all other land uses in the Project area. The principal activity that would increase traffic on all improved roads is traffic associated with power line construction. Several issues would need to be addressed during the construction period.

TABLE 3.1-6 HIGHWAYS CROSSED BY ALTERNATIVE			
Highway Name	**Alternative 2**	**Alternative 3**	**Alternative 4**
Interstate 15	52.9[a]	50.1	72.6
US 2	99.9	94.8	109.6
US 87	5.0	4.6	2.7
Route 225	11.3	10.7	3.7
Route 379	29.8	24.5	30.3
Route 365	48.5	45.0	50.7
Route 218	NC	NC	60.3
Route 219	60.6	57.3	NC
Route 534	66.0	59.9, 60.0, 62.2	NC
Route 44	73.7	70.9	83.3
Route 215	108.2	103.0	118.0
Route 214	128.0	119.8	137.8

Notes:
a = Milepost distance rounded to nearest 1/10 mile
NC = Alternative would not be crossed by highway

A critical element would be timing power line construction and maintenance activities to avoid conflicts with farm machinery. According to Sherwin K. Smith, Executive Director of the Teton County Farm Service Agency, the farm schedule is as follows:

- Fall seeding of winter wheat, September to Mid-October
- Spring seeding of spring wheat, Mid-March to May
- Harvest, July to September or later depending on early snows.

When the existing Great Falls to Cut Bank 115-kV line was constructed in the mid-1960s, a large combine had a 20- to 24-foot header, a big drill was 32 feet, and few, if any, 4-wheel drive tractors were available. Present day equipment has grown substantially (Broesder 2006). Some of the widths are listed below:

- Combine tread width–large unit 13.1 feet is standard, up to 15.1 feet with axle extenders.
- Four wheel drive tractor dual wheels up to 18 feet wide; triples up to 22 to 24 feet wide.
- Air drills (both Case IH and New Holland) - 57-foot drill when folded for transport is 20 feet 6 inches wide by 17 feet high.

With equipment this large, conflicts with farm machinery on local roads are unavoidable especially during seeding and harvest. Timing and open, frequent communication between the landowners and the contractor(s) would help to reduce impacts. The use of pilot vehicles during equipment mobilization and delivery of large, long loads on secondary roads would minimize conflict with ongoing farming activities especially during seeding and harvest.

Airports and Private Airstrips

Alternatives 2, 3, and 4 each pass close to two airports, Conrad and Horner Field. The Conrad Airport is a public airport with two runways (one paved and one turf) and serves an average of 74 aircraft per week. Alternative 3 is 0.75 mile southwest of the Conrad airport, Alternative 2 is 2 miles southwest, and Alternative 4 is 3.7 miles to the northeast. Horner Field is a private, gravel airstrip (Airnav.com 2006). Alternatives 2 and 3 are 1.55 miles east of Horner Field, and Alternative 4 is 1.8 miles to the southwest. Usage information for these facilities is not available. Alternatives 2 and 4 pass about ¼ mile north of a private airstrip near milepost 115 and 125, respectively.

Adherence to FAA regulations and coordination of construction activities would minimize conflict with the MATL project. Construction of the power line, whether parallel to the existing 115-kV NorthWestern line or not, would add to the existing transmission and distribution lines in the project area. Local pilots, those with private airstrips, and aerial spray pilots would be adversely impacted.

Roads and Railroad Crossing and Paralleling

Comments were raised regarding the number of crossings the proposed transmission line would make of roads and railroads.

Support structures adjacent to roads may pose a hazard to motorists, in some cases, if the vehicle leaves the roadway. Because of this, transmission line structures are normally located outside of the road right-of-way. Additionally, roads are commonly used by aircraft for navigation because they are located on a map and transmission lines parallel to a road could create a hazard for a few aircraft that fly less than 80 to 100 feet above the ground.

Transmission line construction and maintenance could increase conflicts with train traffic in the project area, especially at uncontrolled crossings. The power line would have to cross a railroad right-of-way or would run parallel to it at some point along its alignment (MATL 2006b).

The primary impacts to infrastructure would result from power line construction. Follow-up power line maintenance using standard equipment would be an infrequent occurrence and not add greatly to the existing traffic loads on the roadway network.

Direct impacts include increased traffic on major highways and secondary roads, minor delays along these alignments to allow equipment and material to be delivered to specific locations along the alignment, and a traffic stoppage during the conductor stringing phase.

3.1.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.2 Geology and Soils

Issues of concern associated with geologic resources are: the potential for seismic activity, mass movement, subsidence, and mineral resources. Issues associated with soil resources are soil stability, potential for erosion, compaction, salinity, construction requirements for roads and access, and revegetation.

3.2.1 Analysis Methods

The agencies used GIS to display maps depicting the geologic and soil properties that could be affected by the Proposed Project or alternatives. Geologic information was collected from U.S. Geological Survey (USGS) topographic maps, USGS seismic risk data, geologic maps and data primarily from the Montana Bureau of Mines and Geology (MBMG), and from baseline geology data provided in the MATL application (MATL 2006b). Data for important soil properties, including soil type, soil depth, soil stability, potential for erosion, compaction, salinity, limitations for roads and access, and revegetation, were acquired from the NRCS database (NRCS 2006a), the MATL application (MATL 2006b), and aerial photo interpretation. Geologic and soil resources (slope stability and erosion potential) that could be affected differently by different alternatives were evaluated and compared for each alternative alignment.

Analysis Area

The analysis area for geologic and soil resources is the same as the Project study area. The study area is generally located on relatively flat-lying plains on the eastern slope of the Northern Rocky Mountains (Northern Great Plains physiographic province).

3.2.2 Affected Environment

Geology and soils in the analysis area are described below in terms of characteristics relevant to the issues of concern stated under Section 3.2 above.

Geology

The bedrock geologic units present in the analysis area are primarily Cretaceous shales and sandstones deposited during repeated advances and regressions of the inland sea present from 65 to 135 million years before the present (MATL 2006b). The surface expressions of geologic formations crossed by each alignment extend across the entire analysis area and are nearly flat-lying. At the southern end of the analysis area, the dominant structural feature is the northeast trending Great Falls Tectonic Zone, which thins the Cretaceous shales and sandstones (MBMG 2002a).

The north end of the analysis area is on the west flank of the Kevin-Sunburst dome, which produces a slight westerly dip in the Cretaceous sedimentary rock of approximately 100 feet per mile (MBMG 2002b).

The sedimentary formations that underlie the analysis area include the Kootenai Formation, Blackleaf Formation, Marias River Formation, Telegraph Creek Formation, Virgelle Formation, Eagle Formation, and the Two Medicine Formation. The Marias River, Telegraph Creek, and Two Medicine formations underlie most of the analysis area. The Marias River Formation is the uppermost member and is comprised primarily of dark-gray shale with some limestone and sandstone beds; the Telegraph Creek Formation is a yellowish-gray, fine-grained sandstone with interbedded gray shale; and the Two Medicine Formation is comprised of a non-marine mudstone with thin beds of fine-grained sandstone (MBMG 2002c).

Overlying these sedimentary bedrock formations throughout most of the analysis area are deposits of glacial till, glacial lake sediments, and alluvial materials. The glacial till is composed of grayish-brown unsorted clay-size to boulder-size sediments and rock fragments (MBMG 2002c and 2002d). The thickness of the till typically ranges from 1 to 15 feet, with occasional thicknesses greater than 200 feet (MBMG 2002b and 2002c). Alluvial deposits are present in the analysis area along river and stream channels and are typically poorly sorted to well sorted sand and gravel materials that are locally derived or reworked glacial till (MBMG 2002a).

Potential for Seismic Activity

The potential for seismic activity within the analysis area is low. There are no mapped active faults in the analysis area (USGS 2006b). The nearest faults are the South Fork Flathead Fault and two small unnamed faults near the Sweet Grass Hills (MATL 2006b). The USGS has created models to estimate the peak acceleration for any area within the country. Peak acceleration is used to assess the potential impact of earthquakes on structures. The peak acceleration for the analysis area (with a 10 percent probability of exceedance within the next 50 years) is 4.5 to 6.5 percent of the force of gravity, relatively low compared to elsewhere in the U.S. (USGS 2006b).

Mass Movement

Mass movement is the relatively rapid movement of geologic materials (commonly known as a slump or slide). The potential for mass movement of soil or rock primarily depends on topography and the dip of the bedding planes of the bedrock. The general topography and bedding plane dip slopes of the analysis area are flat with small potential for mass movement. The potential for mass movement is also based on the overall shear strength of the geologic materials. Glacial till is unconsolidated and thus prone to mass movement if located on a slope of 15 percent or greater. Shale is also

prone to mass movement on slopes. Areas within the analysis area having the greatest potential for mass movement are found where glacial till materials are positioned on terraces and the incised banks of the Teton River, Marias River, Dry Fork Marias, and Buckley Coulee. **Figure 3.2-1** shows areas in the study area with surficial expressions of shale and glacial till on slopes greater than 20 percent. Field review and examination of aerial photographs of the Teton River crossings indicate there are numerous slumps on the steep slopes.

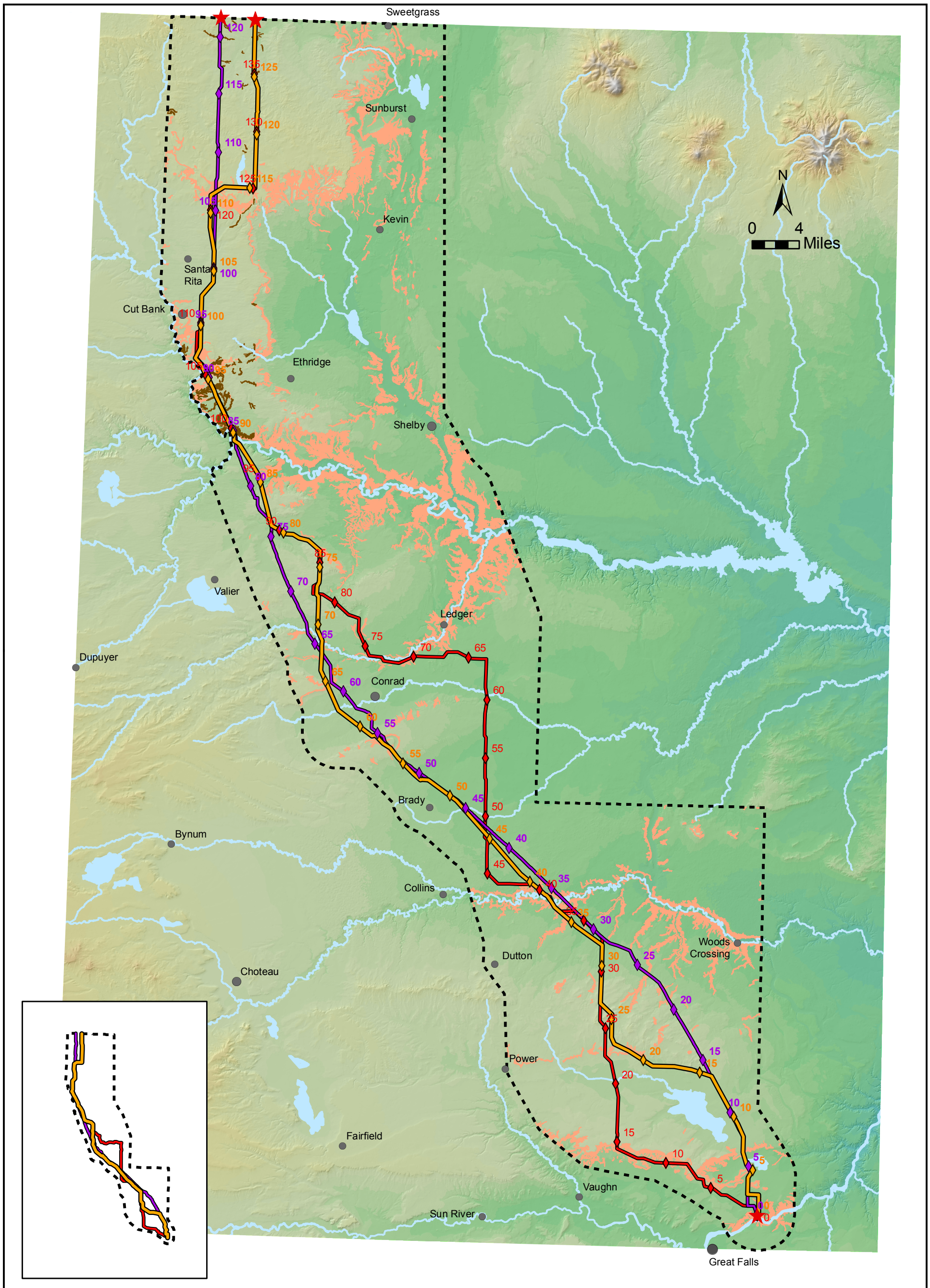
Subsidence

Subsidence can occur when voids are created in subsurface materials (sinkholes in limestone or subsurface mining) causing collapse of overlying material, or when the withdrawal of groundwater or petroleum causes geologic material to settle. The potential for the creation of voids and subsequent sinkholes within the geologic materials in the analysis area is low to nil due to the absence of limestone. No active or abandoned subsurface mines are located within the alignments of the action alternatives. Subsidence related to the withdrawal of groundwater or petroleum is also unlikely within the analysis area since petroleum is extracted at low to moderate rates and from consolidated bedrock formations. Groundwater pumping in the analysis area does not occur at rates and volumes large enough to cause subsidence.

Mineral Resources

Mineral resources include oil, gas, coal, sand and gravel, and precious metals. Petroleum deposits are found within the Cretaceous rock formations that are mapped from south of Cut Bank to the Canadian border. There are numerous producing and abandoned oil wells present across this portion of the analysis area. South of the Marias River to Great Falls, there are fewer oil wells and fewer known oil and gas deposits. The Cretaceous rock formations also contain deposits of coal. There are no known precious metal deposits in the study area. A few gravel pits are scattered throughout the study area, but none of the alternatives crosses an active gravel pit.

FIGURE 3.2-1
SOIL EROSION POTENTIAL



LEGEND

- GLACIAL TILL WITH HIGH MASS WASTING POTENTIAL ON SLOPES > 20%
- SOILS WITH HIGH MASS WASTING POTENTIAL ON SLOPES > 20%
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_2-1_MATL_erosian_potential_110707.mxd

Soils

The kinds of soils that have developed in the analysis area are determined by five major factors: (1) climate; (2) living organisms; (3) parent material; (4) topography; and (5) time. Three of the five factors have had a major influence on soil development in the analysis area; they are climate, parent material, and topography. The colder, semi-arid climate has caused soil profiles to be shallow compared to soils from warmer and wetter locales. As discussed in the Geology section, soils that develop on shale and sandstone bedrock have considerably different parent materials than soils that develop from glacial till and glacial outwash sediments. In addition, topography has local influences due to the erosional downcutting and steeper slopes associated with the major Marias and Teton stream drainages and their associated tributaries.

Soils that form on relatively flat deposits of glacial till are mostly well-drained and fine-textured soils. These soils are suitable for agriculture and rangeland and are rated fair to good for growing grasses, low to moderate for frost action, and high for corrosion of steel (NRCS 2006a). Most of the soils within the MATL analysis area that have developed from the glacial till deposits are classified in the Mollisol soil order (NRCS 2006a). Other soil types, with lesser areal coverage than Mollisol soils, are classified in the Entisol, Inceptisol, and Vertisol soil orders. Only very small areal amounts of Alfisols and Aridisols soils are found within the analysis area.

Soils in the Mollisol soil order characteristically have a dark-colored, relatively thick, and organically rich surface horizon that developed under thousands of years of grassland vegetation (Soil Science Society of America [SSSA] 1997). Within the analysis area, the Mollisol soils typically have a fine- to fine-loamy-grained texture, are well drained, and have formed on stream terraces, alluvial fans, and glacial till plains with slopes less than 10 percent.

Soils in the Entisol soil order are younger and weakly developed soils, compared to Mollisols, with little, if any, profile development (SSSA 1997). Entisol soils are found on very recent geomorphic surfaces (Brady 1990). Within the analysis area, Entisol soils typically are well-drained soils with a fine-loamy to loamy-grained texture. Entisol soils are mapped on flood plains, glacial till plains, and hills with slopes up to 60 percent within the MATL analysis area.

Soils in the Inceptisol soil order are also weakly developed soils with few diagnostic features but are considered to be more developed than the Entisol soils. These soils typically have a subsurface mineral horizon with some weatherable minerals that have been slightly altered or leached (SSSA 1997). Within the analysis area, the Inceptisol soils typically have a fine- to fine-loamy-grained soil texture. These soils are well drained and can produce good agricultural crops under proper management (Brady

1990). In the MATL analysis area, Inceptisol soils have formed on alluvial fans, glacial till plains, and hills with slopes less than 45 percent (NRCS 2006a).

Soils in the Vertisol soil order are mineral soils with greater than 30 percent clay. Within the analysis area, the Vertisol soils have formed from finer-grained glacial sediments that were deposited by glacial outwash. These soils can be well drained under proper management, but will form deep wide cracks when dry (SSSA 1997). Vertisol soils in the analysis area typically have a very fine- to fine-grained texture and are found on alluvial fans, glacial till plains, and lake plains with slopes less than 10 percent.

Soil Stability and Erodibility

The stability and potential for erosion of these soils are primarily dependent on the particle size, slope, and potential for mass movement. Fine-grained soils are more susceptible to wind and water erosion than coarser soils, and soils on steep slopes are more prone to erosion than soils located on relatively flat terrain. Steep slopes are also required for the mass movement of soils.

The majority of the MATL analysis area contains relatively flat terrain. Exceptions are the steep slopes associated with the bluffs north of Great Falls and stream banks along the Teton River, Dry Fork of the Marias River, and Marias River. Mass movement of soils is occurring within the analysis area along the Teton River. Areas of highly erodible or unstable soils (soils with shale and glacial till materials on slopes greater than 20 percent) within alternative alignments are shown in **Figure 3.2-1**.

Compaction

The degree to which soils may become compacted from farming or construction operations is primarily dependent on the surface soil grain size, the mineral composition of the soil, and the moisture content. Soils with high silt and clay content are more susceptible to becoming compacted than sandy soils under the same moisture conditions. Moist soils are more prone to compaction for all soil texture and mineral types. Dry soils are less susceptible to compaction than wet soils, but dry soils produce more dust that is eroded by wind. Many of the soils within the MATL analysis area have fine-grained surface soil textures and will be prone to compaction by construction equipment, if adequate soil moisture is present. This may be especially true with cement trucks delivering concrete for monopole foundations.

Salinity

Salinity is a measure of the salt content of the soil. Highly saline soils inhibit the growth of vegetation due to the increased osmotic potential exerted by the salts in the soil solution. Revegetation of disturbed areas with highly saline soils may be problematic. Most of the soils within the analysis area have low to moderate salinity and small areas of saline soils could be avoided. Revegetation success should not be influenced by saline soils in the analysis area with the exception of saline seep areas.

Roads and Access

Roads are best constructed on soils with coarse-grained surface soil textures, compared to soils with surface soils with fine-grained textures. Many soils in the MATL analysis area have fine-grained surface soil textures and may not be suitable for building temporary or permanent roads.

Revegetation

The soils within the MATL analysis area are mostly rated fair to good for growing grasses. The reestablishment of range or cropland vegetation on the disturbed lands should be successful if standard fertilization and seeding methods are implemented.

3.2.3 Environmental Impacts

Potential impacts to geologic and soil resources from the four alternatives are described in this section. The difference among action alternatives depends on the competency of the bedrock, soil type, slope, and disturbance activities that would take place at a given location. Resource characteristics that could be affected differently by each action alternative are slope stability (due to mass movement) and soil stability (due to erosion). Increasing the risk of mass movement could not only result in slope instability, but also compromise the integrity of transmission line support poles. Increasing soil erosion could result in the loss of topsoil, reduced effectiveness of revegetation efforts during reclamation, and increased sedimentation to surface water. Increased soil compaction would also reduce the effectiveness of reclamation efforts in the selected alignment.

Other geologic and soil characteristics (seismicity, subsidence, mineral resources, salinity, road substrate material, and compaction) are similar throughout the analysis area. Impacts to (and from) these resources would be the same for all alternatives and are described below.

3.2.3.1 Alternative 1 — No Action

The No Action alternative would not affect geology or soil resources beyond current impacts from farming, road building, and construction activities.

3.2.3.2 Alternative 2 – Proposed Project

Areas within the Alternative 2 alignment that are prone to impacts, including slope stability (due to landslide in areas underlain by glacial till and shale on a slope), soil stability (due to erosion on slopes), and soil compaction, are shown on **Figure 3.2-1**. Overall, with successful implementation of the MATL proposed environmental protection measures and the required DEQ environmental specifications, impacts to soils and geology under Alternative 2 would be minor and primarily of short duration.

MATL proposes to use laminated wood or steel poles, which are usually treated with chemicals to extend the life of the wood. Some of the chemicals typically used include pentachlorophenol, creosote, arsenic, and chromium. Some of these chemicals may affect the soil immediately adjacent to the pole. Pentachlorophenol is approved for use by EPA, but is considered a probable human carcinogen. Pentachlorophenol, when released to soil or water, would be slowly broken down by sunlight, other chemicals, and microorganisms to other chemicals within a couple of days to months.

Potential for Landslide

Landslides are the downslope movement of earth or surface materials due to gravity, and include rock falls, rotational or translational slides, and earth or debris flows. Slides are the most common and most destructive type of landslide and of most concern for the MATL project. Slides are likely to occur on incised banks and steep slopes primarily where the alignment would cross streams and rivers. Landslides could result in the shifting or collapse of transmission line poles and would likely contribute to the sediment load of nearby surface water. Landslides occur naturally and can be exacerbated by ground disturbance and heavy equipment associated with the construction of the transmission line. The risk for landslide is greatest in the hills near Black Horse Lake (milepost 5), and at the north side of the Teton River (milepost 35 to 40). Areas within the Project study area with high potential for landslide are shown on **Figure 3.2-1**. MATL would implement erosion and sediment control practices as provided in its application (**Table 2.3-4**) (MATL 2006b) and required by the State of Montana. DEQ Environmental Specifications in **Appendix F** include precision mapping of unstable soils along these segments of the Alternative 2 alignment and providing an alignment wider than 500 feet to allow flexibility in pole placement near the Teton River, so future landslides do not adversely affect the proposed line.

Soil Stability and Erodibility

Areas prone to soil instability, mass movement, and associated soil erosion are shown on **Figure 3.2-1**. Areas with glacial till on slopes greater than 20 percent and fine-textured soils on slopes greater than 20 percent have the highest potential for mass movement and soil erosion. Approximately 16.4 miles of Alternative 2 are located on unstable soils on slopes greater than 15 percent. Soil stability and erodibility are primarily dependent on soil texture, slope, and degree of disturbance. Soils along much of Alternative 2 are fine-grained and are prone to erosion when the vegetative cover is disturbed, which would be primarily during construction activities. The greatest potential for soil erosion for Alternative 2 would be from the construction of access roads along the valley walls of the Teton and Marias rivers. Implementing soil and erosion control measures would help minimize the formation of gullies.

Compaction

Soils may become compacted under all action alternatives, especially during the construction phase. Heavy axle loads and wet soil conditions increase the depth of compaction in the soil profile. A research study conducted in Lamberton, Minnesota, found that a clay loam soil was compacted with 10- and 20-ton axle weights to depths of 2 feet. When the soil was dry, most of the compaction was confined to the top foot, but under wet conditions the 20-ton axle load compacted the soil to 18 inches (Voorhees et al. 1986). Total axle load, as well as contact pressure between the tire and soil, affects soil compaction. A fully loaded cement truck may weigh 65,000 lbs (32.5 tons) (Personal communication between Mr. Scott Gleich, Helena Sand and Gravel, and Tetra Tech, July 11, 2008). These cement trucks have 5 axles when the tag axle is lowered, which equates to an average axle load between 6 and 7 tons. Tire size and the surface area of tire in contact with the soil are also factors in soil compaction caused by heavy vehicles. The axle load and wheel load for a fully loaded cement truck that would be used in construction of the MATL line should be less than some modern farm equipment and implements currently in use. Axle loads for some field equipment are provided in **Table 3.2-1**. Deeper subsoil compaction is more likely to persist compared to shallow compaction that is mostly ameliorated by standard tillage operations. Subsoil compaction could be mitigated through deep subsoil ripping or chiseling, if needed. Because the axle and wheel loads for the heaviest construction equipment (i.e., fully-loaded concrete truck) could be less than some modern farm equipment, soil compaction resulting from the construction of the MATL line should be no greater than for farming activities.

TABLE 3.2-1 APPROXIMATE AXLE LOADS FOR FARM EQUIPMENT [a]	
Equipment	**Axle Load (tons/axle)**
6-row combine, empty	10
12-row combine, empty	18
12-row, full with head	24
720 bu grain cart, full, 1 axle	22
Beet cart, full	24
Grain cart, 1,200 bu., 1 axle	35-40
Grain cart, 1,200 bu., 2 axles	17-20
4WD Tractor, 325 HP, front axle	13
4WD Tractor, 200 HP, front axle	7.5

[a] University of Minnesota Extension. 2001. Section 1: Soil Compaction-Causes and Consequences. Website: http://www.extension.umn.edu/distribution/cropsystems/components/3115s01.html.

MATL has committed to stripping topsoil, by sidecast methods, for new access roads and replacing the sidecast soils following construction. MATL has also developed specific mitigation measures for soils, including providing an erosion control plan and implementing best management practices (water bars, drainage contours, straw bales, filter cloth, or similar) for areas with susceptible soils to minimize impacts to soils.

3.2.3.3 Alternative 3 – MATL B

Alternative 3 is 8.3 miles shorter than the Alternative 2 (121.6 miles vs. 129.9 miles) due to more diagonal segments along the entire alignment. The potentials for mass movement and unstable soils are similar to those under Alternative 2, but the lengths of the alignment with the potential for mass movement and the occurrence of unstable soils are less under Alternative 3.

Potential for Landslide

Mass movement impacts and mitigations would be similar to Alternative 2. The risk for mass movement is greatest near the historic channel of the Teton River (milepost 32 to 34) and at the Marias River crossing (milepost 84 to 85). Areas within the Project study area with high potential for landslide are shown on **Figure 3.2-1**. MATL would implement erosion and sediment control practices as provided in its application (**Table 2.3-4**) (MATL 2006b) and required by the State of Montana draft Environmental Specifications (**Appendix F**) and a required stormwater pollution prevention plan under Montana's Water Quality Act.

Soil Stability and Erodibility

Areas prone to soil instability, mass movement, and associated soil erosion problems are shown on **Figure 3.2-1**. About 12 miles of Alternative 3 are located on unstable soils on slopes greater than 15 percent. Soil stability and erodibility are primarily dependent on soil texture, slope, and degree of disturbance. Soils along much of Alternative 3 are fine-grained and are prone to erosion when the vegetative cover is disturbed, which would be primarily during construction activities. The greatest potential for soil erosion for Alternative 3 would be from the construction of access roads along the banks of the Teton and Marias rivers. Implementing soil and erosion control measures would help minimize the formation of gullies.

3.2.3.4 Alternative 4 – Agency Alternative

Alternative 4 is 139.9 miles in length, which is about 10 miles longer than the proposed Project (129.9 miles). This alternative is composed of 60.9 miles of the Alternative 2 alignment and 78.7 miles of agency-developed alignments that branch off the Alternative 2 alignment. The 78.7 miles of agency alignments were developed to address identified local scoping issues and concerns. The potentials for mass movement and unstable soils are similar to those under Alternatives 2 and 3, but the lengths of the alignment with the potential for mass movement and the occurrence of unstable soils are greater under Alternative 4 primarily due to the alignment of the alternative along the Dry Fork of the Marias River.

Potential for Landslide

Mass movement impacts and mitigations would be similar to Alternative 2. The risk for landslide is greatest within the historic channel of the Teton River (milepost 36 to 42), along the Dry Fork of the Marias River (milepost 70 to 82), and at the Marias River crossing (milepost 98.5 to 100.5). Areas within the Project study area with high potential for landslide are shown on **Figure 3.2-1**. MATL would implement erosion and sediment control practices as provided in its application (**Table 2.3-4**) (MATL 2006b) and required by the State of Montana (**Appendix F**) and a required stormwater pollution prevention plan under Montana's Water Quality Act.

Soil Stability and Erodibility

Areas prone to soil instability, mass movement, and associated soil erosion problems are shown on **Figure 3.2-1**. About 24 miles of Alternative 4 are located on unstable soils on slopes greater than 15 percent. Soil stability and erodibility are primarily dependent on soil texture, slope, and degree of disturbance. Soils along much of Alternative 4 are fine-grained and are prone to erosion when the vegetative cover is disturbed, which would be primarily during construction activities. The greatest potential for soil

erosion for Alternative 4 would be from the construction of access roads along the banks of the Teton, Dry Fork of the Marias, and Marias rivers. Implementing soil and erosion control measures would help minimize the formation of gullies.

3.2.3.5 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.3 Engineering and Hazardous Materials

3.3.1 Analysis Methods

Engineering concerns pertain to transmission line support structures and the impacts of these structures associated with crossing contaminated sites, pipelines, other transmission lines, major highways, streams, and rivers.

Analysis Area

The analysis area for engineering and hazardous materials includes the proposed power line alignments, staging locations, and a 1-mile buffer zone on each side of the proposed alignments.

Information Sources

Information for the analysis of engineering resources was obtained from the MATL MFSA application (MATL 2006b). Information sources for hazardous materials in the affected environment included the online U.S. Environmental Protection Agency (EPA) Region 8 Superfund Site Locator (EPA 2006c), the online Montana NRIS (2006b), and field observation of oil and gas extraction operations within the analysis area.

Methods used to analyze the potential impacts of alternatives 2, 3, and 4 included evaluation of proposed alignments with respect to mapped hazardous materials in the analysis area and evaluation of proposed activities with respect to potential use and generation of hazardous materials.

3.3.2 Affected Environment

Proposed Transmission Line Design

The transmission line would be designed, constructed, operated, and maintained in accordance with the NESC, U.S. Department of Labor OSHA Standards, and other guidance as appropriate for safety and protection of human life and the environment.

Federal Superfund Sites

A review of the online EPA Region 8 Superfund Site Locator found that there are no Federal Superfund (Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA) sites in the Project area. The closest Federal Superfund sites to the project area are the Barker Hughesville historic mining district and the Carpenter-Snow Creek mining district, both of which are on the Federal National Priorities List.

Barker Hughesville mining district is 36.2 miles southeast of Great Falls. Carpenter-Snow Creek mining district is 46 miles southeast of Great Falls.

State Superfund Sites

There are four state Superfund sites in the Project area. Three of the sites are not affected by any transmission line alignments. The Conrad Refining Company site, 1 mile south of Conrad, is an inactive, 9-acre oil refinery operated from 1929 to 1941 where operators disposed of sludge in on-site pits. The Midwest Refining Company site, in Conrad near Front Street and Second Street South, is an inactive, 0.9-acre former oil refinery in operation around 1929. Little historic or other information is available about the facility. The Union Oil-Cut Bank Refinery site (also known as the Flying J Refinery), 3 miles southeast of Cut Bank, is an inactive crude oil refinery and natural gas processing plant operated from 1937 to 1983. One site, The Carter Oil Company Cut Bank Refinery, 1 mile east of Cut Bank is within 1,000 feet of the Alternative 2 alignment.

Oil and Gas Operations and Pipelines

Numerous oil and gas fields are located in the northern portion of the analysis area. All action alternatives would traverse areas with operating oil and gas extraction wells, well waste pits, oil and gas storage systems, and pipelines. A variety of pipelines, including gathering system main lines and transmission or trunk lines between 8 and 20 inches in diameter, are within or traverse the Project study area. These pipelines are used to transport either crude oil or natural gas. Four major pipelines are in a broad corridor between the Canadian border and Cut Bank; six major pipelines are between Cut Bank and Great Falls.

Crude oil pipelines in the analysis area were located based on information provided by several sources including Front Range Pipeline Company, USGS topographic maps, agency field notes from the fall of 2006, review of 2005 aerial photographs, NRIS mapping, and the Montana Board of Oil and Gas Conservation. Crude oil pipelines in the NRIS database (Corridor Oversight Review Committee, Montana State Library 1999), or provided by the above referenced sources include:

- Two Continental crude oil pipelines located east of Great Falls running northwest approximately parallel to the Proposed Project and alternatives. The pipelines are 12 inches and 18 inches in diameter. These pipelines run from east of Great Falls through Portage, Cascade County, to Cut Bank and beyond. These pipelines are crossed in the vicinity of Cut Bank by alternatives 2, 3, and 4.

- Two Front Range Pipeline Company 10-inch mainlines, one 6-inch mainline, and one 16-inch mainline start at the U.S.-Canada border and end at the Santa Rita pump station.

- One Front Range Pipeline Company 16-inch mainline starts at Santa Rita station and ends in Laurel, Montana.
- One Front Range Pipeline Company 8-inch mainline starts at the Santa Rita station and ends at the Cut Bank station.

Additional smaller natural gas pipelines are likely located within the analysis area and may be crossed by alignments associated with alternatives 2, 3, and 4.

3.3.3 Environmental Impacts

3.3.3.1 Alternative 1 — No Action

The MATL transmission line would not be built. There would be no engineering or hazardous materials concerns if the No Action alternative is selected.

3.3.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Proposed Construction

The 500-foot-wide Alternative 2 alignment would come within 100 feet of an existing pipeline for a total length of 7.0 miles. The Alternative 3 alignment would come within 100 feet of an existing pipeline for a total of 23.7 miles, and the Alternative 4 alignment would come within 100 feet of an existing pipeline for a total of 5.7 miles. A study, requested by DEQ and prepared by SNC LAVALIN for MATL (SNC LAVALIN 2006b) helped quantify the relationship between the maximum induced voltage on a theoretical pipeline caused by the operation of the MATL 230-kV transmission line for different lengths of parallel and separation distances. Assuming the transmission line was constructed near the center of the 500-foot wide alignment, the separation distance between the pipeline and the transmission line would be a minimum of 250 feet. The SNC LAVALIN study estimated that the steady state induced voltages on the pipeline should be below the safety threshold of 15 volts (voltage that a human with an average body weight can withstand) (Canadian Standard Association 2007; .NACE Standard 2000) under most conditions. However, the study recommends that MATL contact the pipeline companies when the length of parallel and separation distance could induce voltages that exceed the 15 volt safety threshold. Common grounding mitigation measures were recommended in the study to reduce risks of induced voltages from human contact with an affected pipeline (SNC LAVALIN 2006b). Mitigation measures included grounding mats, gradient wire controls, and gradient control mats and grids. The risk for potential pipeline damage (accelerated corrosion) would also increase with an increase in length of alignment proximal to a pipeline. With the implementation of safe work and sound construction practices, no short-term adverse impacts would be associated with transmission line construction tasks.

Proposed Operations and Maintenance

No long-term adverse impacts would be associated with operation and maintenance of the transmission line. Wood H-frame structures generally require more maintenance than steel structures and have a shorter useful life. Wood H-frame structures should meet the operational life of the proposed transmission line. Pentachlorophenol would be used as a wood preservative for the wood pole structures and is an EPA registered restricted use pesticide for this use. When poles are no longer sound or useful, structure components that have been treated would have to be disposed of as a hazardous waste (estimated 11,000 cubic yards of treated wooden poles).

Impacts to buried utilities, such as pipelines, and the minimum separation distances and length of parallel were evaluated and modeled for MATL by SNC LAVALIN (SNC LAVALIN 2006b). Many factors and assumptions were used to model the steady state line operation and single line to ground fault conditions. In addition to the variables for the transmission line, the amount to induced voltages on a pipeline would also depend on the pipeline coatings, other physical properties of the pipeline, and soil conditions. Some reference lengths of separation distances and lengths of parallel that would result in induced voltages of 15 volts are provided in **Table 3.3-1**.

TABLE 3.3-1
MAXIMUM STEADY STATE INDUCED VOLTAGES FOR SELECTED SEPARATION DISTANCES AND LENGTHS OF PARALLEL

Horizontal Separation between Transmission Line and Pipeline (feet)	Length of Parallel (miles)	Maximum Induced Voltage (Volts)
<66 feet (min. modeled)	About ½ mile	12
100	About 1 mile	15
150	About 2 miles	15
240	About 4 miles	15
330	About 6 miles	15
1640	About 9 miles	15

The length of the parallel and separation distances would vary for each alternative. **Table 3.3-2** provides the lengths of parallels by alternatives for horizontal separations that may have induced voltages above the 15 volt threshold. After a selected alternative alignment has been certified by DEQ and DOE, the locations of any potentially high induced voltages could be provided to all impacted pipeline companies. MATL would consult with pipeline owners about the best methods to implement the appropriate mitigation measures to reduce discharges and interference with cathodic protection systems (MATL 2006, SNC LAVALIN 2006). Agencies would require MATL to consult with owners of pipelines crossed and paralleled (within 2,000 feet) and implement any measures requested by the pipeline owner or operator to prevent interference with the cathodic protection system. Common grounding mitigation measures, such grounding mats, gradient wire controls, and gradient control mats and grids, would likely be required. In addition, the transmission line would comply with all Federal and State regulations concerning co-locating a transmission line near a buried gas pipeline (Dawalibi 2004). Additional discussion on the mitigating measures that could be used and the safety of co-locating a transmission line with a pipeline is provided in Section 3.4.3.

TABLE 3.3-2
AREAS WHERE TRANSMISSION LINE AND PIPELINE SEPARATION AND LENGTH OF PARALLEL MAY CREATE VOLTAGES ABOVE 15 VOLTS

Alternative	Total Length of Parallel (<100 feet separation)[1]	No. of Parallels (<100 feet separation) that are minimum of 1 mile long[1]	No. of Parallels (<150 feet separation) that are minimum of 2 miles long[1]	No. of Parallels (<240 feet separation) that are minimum of 4 miles long[1]
Alt 2	7.0 miles	2	0	0
Alt 3	9.8 miles	4	0	0
Alt 4	5.7 miles	0	0	0

[1] A horizontal separation and length of parallel that may create induced voltages above 15 volts.

Federal and State Superfund Sites

No Federal or state Superfund sites would be affected by any of the proposed alignments.

3.3.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.4 Electric and Magnetic Fields

This section evaluates potential impacts related to electric safety, electric and magnetic fields, and electric shock. It includes background information on minimum ground clearances, potential impacts from electric and magnetic fields (EMF), and corona effects.

Both current and voltage are required to transmit electrical energy over a transmission line. The current, a flow of electrical charge, measured in amperes (A), creates a magnetic field. The magnetic field is expressed in units of milligauss (mG). The voltage, the force or pressure that causes the current to flow, measured in units of volts (V) or thousand volts (kV), creates an electric field. Both fields occur together whenever electricity flows, hence the general practice of considering both as EMF exposure. Any device connected to an electrical outlet, even if the device is not turned on and current is not flowing, would have an associated electric field that is proportional to the voltage of the source to which it is connected. Magnetic fields occur only when current is flowing. Common materials such as wood and metal usually do not shield against magnetic fields.

This section also addresses safety considerations in the immediate vicinity of transmission lines. Additionally, the potential for corona effects on the human environment from transmission lines is discussed. Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors, the wires that carry electricity. Corona effects are of concern for potential audible noise, interference with radio, television, and other electrical devices, such as differential Global Positioning System (DGPS) equipment, production of visible light, and photo chemical reactions.

3.4.1 Analysis Methods

The EMF effects of the transmission lines were calculated for a range of distances from the transmission line. In general, the farther removed a person is from the transmission line, the lower the EMF strength. Different scenarios were tested in the calculations. Because the magnetic field varies with the current carried on the transmission line, magnetic field strength was calculated for the normal anticipated voltage of 230 kV (under normal operating conditions) per circuit. In the optimized phasing orientation, the phases of the single circuit are offset to minimize the EMF strength. As described in Section 3.4.2, the focus of EMF health studies and the focus of the following impacts analysis are on magnetic fields, although electric fields are included for completeness.

Since MATL's policy is to minimize EMF exposure levels to the extent practicable, MATL would use the vertical optimized phasing orientation for the single-circuit line. Results from the non-optimized phasing orientation are included for comparison purposes only. The calculations evaluate EMF strength at a range of distances from the centerline of the transmission line, both within and outside the 105-foot-wide right-of-way, and for the portion of each span where the conductors are closest to the ground. The magnetic field is expressed in units of mG; the electric field is expressed in units of kV/m.

The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands, expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum clearance of 27.2 feet for the safe operation of farm equipment under the line.

The potentials for corona effects and effects on safety are also evaluated. The nearest potential stationary receptors to the transmission line were determined for the proposed alternative reference centerline alignment and included residences, schools, and commercial establishments.

Analysis Area

The analysis area for human health effects from electric and magnetic fields would include the 105 foot wide right-of-way. The right-of-way could be adjusted if necessary to meet the electric field requirements set forth by the State of Montana of 1 kV/m at the edge of the right-of-way in residential and subdivision areas.

Information Sources

General EMF data were researched from the American Conference of Governmental Industrial Hygienists, the Institute of Electrical Engineers, the California Department of Health Services, the National Institutes of Health, World Health Organization, journal articles, and the National Institute of Environmental Health Sciences (NIEHS).

3.4.2 Affected Environment

The affected environment is described in terms of both magnetic and electric health concerns.

Magnetic Field Health Concerns

In recent years**, t**he focus of the EMF health studies for power lines has been on the magnetic fields created by the power lines. These studies investigated the potential that exposure to magnetic fields would increase the risk of cancer, leukemia, miscarriages, and other diseases. A recent report by the BioInitiative Working Group (2007) documents key studies and reviews for low-intensity effects of electromagnetic fields. This report attempts to document deficiencies in current exposure standards which are primarily safety limits, and the need for biologically-based exposure standards. The BioInitiative report concludes that a reasonable approach would be 1mG planning limit for habitable space adjacent to new or upgraded power lines and a 2mG limit for all other new construction. Other groups have adopted far less stringent standards.

A 60-Hertz (Hz; cycles per second) magnetic field is created in the space around transmission line conductors by the electric current flowing in the conductors. This is the frequency of ordinary household current, usually referred to as 60 cycle. The strength of the magnetic field produced by an electric transmission line depends on the amount of current flowing through the conductor (the higher the electrical load, the higher the current), the configuration of the conductors (spacing and orientation), the height of the conductors, the distance from the line, and the proximity of other electrical lines. As the electric load (and the resulting current) on a transmission line varies continually on a daily and seasonal basis, the magnetic fields likewise vary throughout the day and year. Magnetic fields are highest closer to the line and diminish with distance. Physical structures, such as buildings, are transparent to magnetic fields in that they do not provide any shielding, thus fueling the interest in potential health effects.

Existing magnetic field levels in the project vicinity are primarily produced by common household appliances. Magnetic field strengths of some common household appliances are listed in **Table 3.4-1**. This table shows that the magnetic fields at a distance of 3 feet range from less than 0.1 mG to 18 mG.

Existing transmission and distribution lines also contribute to EMF levels. **Figure 3.4-1** shows the existing transmission lines in the project vicinity. As an example of maximum existing EMF, MATL has modeled EMF levels from the existing 115-kV transmission lines that run through the proposed Project area. At a distance of 49 feet from the existing 115-kV transmission line (which coincides with the proposed location of MATL's new transmission line), the magnetic field is 6.5 mG and the existing electric field is 1.75 kV/m. At a distance of 200 feet from the existing 115-kV transmission line the magnetic field is 0.4 mG and the electric field is 1.06 kV/m under normal operating conditions.

TABLE 3.4-1 EMF LEVEL OF SOME COMMON HOUSEHOLD APPLIANCES	
Appliance	**Magnetic Field at 3 feet (mG)**
Clothes dryers	0.0 to 1
Clothes washers	0.2 to 0.48
Electric shavers	Less than 0.1 to 3.3
Fluorescent desk lamp	0.2 to 2.1
Hair dryers	Less than 0.1 to 2.8
Irons	0.1 to 0.2
Portable heaters	0.1 to 2.5
Television	Less than 0.1 to 1.5
Toasters	Less than 0.1 to 0.11
Vacuum cleaners	1.2 to 18.0

Notes:
EMF = electric and magnetic field
mG = milligauss
Source: Waveguide 2003

No Federal or state regulations are in effect specifying environmental limits on the strengths of magnetic fields from power lines. However, the state of Montana has adopted an electric field exposures of 1 kV/m edge of right-of-way standard in residential and subdivided areas unless waived by the landowner and a 7 kV/m standard for road crossings.

Electric Field Health Concerns

Safety considerations in the immediate vicinity of electric power lines include the potential for electric shock, the clearance of the power lines above ground, measures to prevent unauthorized climbing of the poles, and the proximity of the transmission lines to other utilities such as oil wells and pipelines.

The electric field created by a high-voltage transmission line extends from the energized conductors to other conducting objects such as the ground, towers, vegetation, buildings, vehicles, and persons. Potential field effects can include induced currents, steady-state current shocks, spark discharge shocks, and in some cases field perception and neurobehavioral responses.

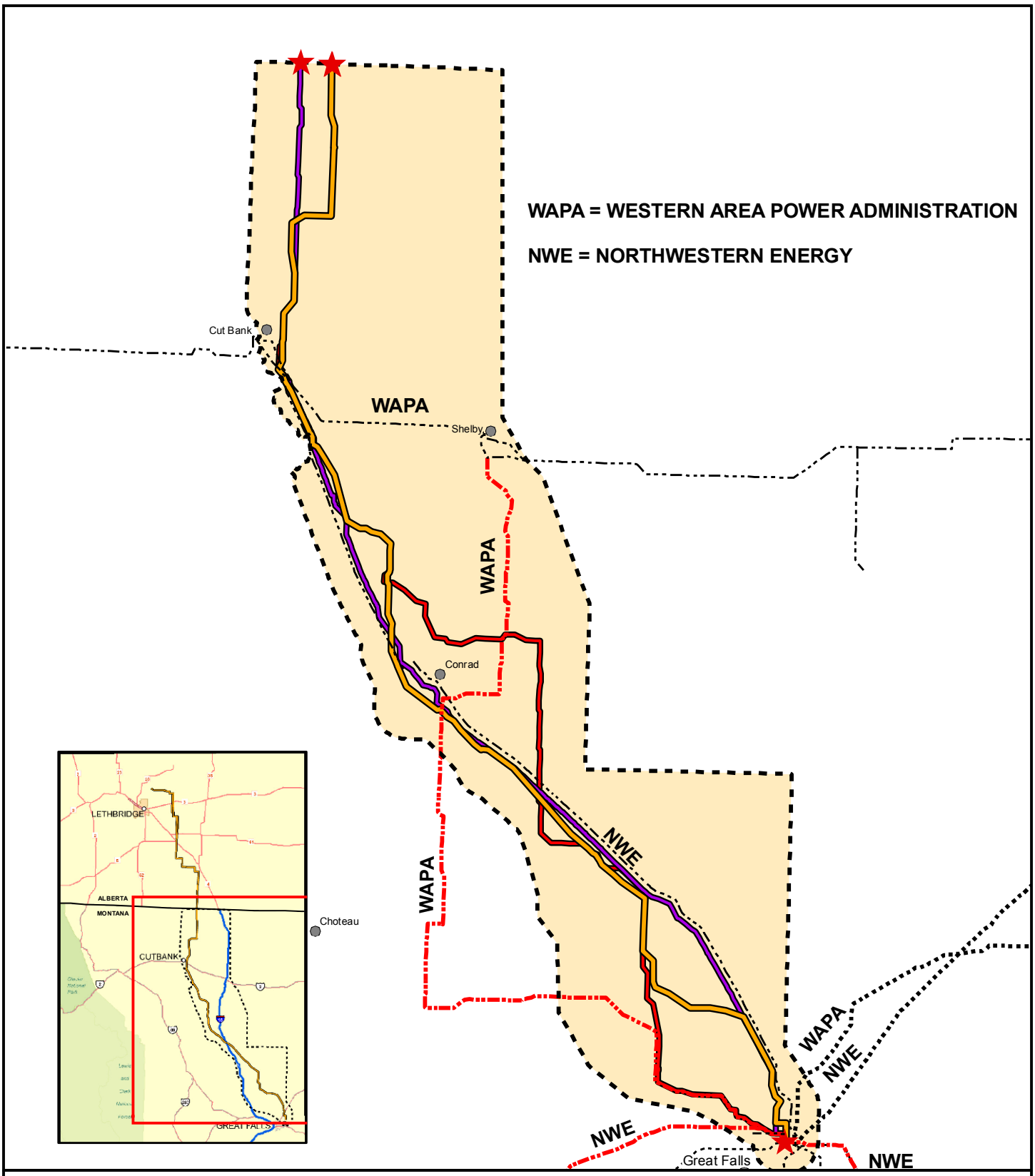


FIGURE 3.4-1
EXISTING TRANSMISSION LINES LARGER THAN 69kV IN PROJECT VICINITY

LEGEND

- 230kV POWERLINE
- 161kV POWERLINE
- 115kV POWERLINE
- 100kV POWERLINE
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_4-1_MATL_Transmission_Lines_letter_012207.mxd

Sparking and Shocks

In a high electric field, it is theoretically possible for a spark discharge from the induced voltage on a large vehicle to ignite gasoline vapor during refueling. However, the probability for the precise conditions to occur for ignition is extremely remote. According to the Conrad-Shelby EIS (DOE 1986), the ignition of fuel under a transmission line would require that an individual be standing on damp earth or vegetation and that the vehicle to be refueled will be exposed to the maximum intensity of the electric field. Also, the vehicle must not be grounded.

Finally, the air-fuel mixture must approach optimal flash-point conditions. Therefore, the number of precise conditions to be met to achieve fuel ignition reduces the likelihood of the occurrence. In the event fueling is to be done under a power line, grounding is recommended.

Short Circuit Currents

When a conducting object, such as a vehicle or person, is placed in an electric field, currents and voltages are induced. Some representative short-circuit currents in undisturbed electric fields of 1 kV/m and 3.5 kV/m are provided in **Table 3.4-2**.

TABLE 3.4-2
SHORT CIRCUIT CURRENTS FOR VARIOUS OBJECTS IN MILLIAMPERES (MA)

	Electric Field	
Object	**1 kV/m**	**3.5 kV/m**
Person (5'8" tall)	0.016	0.06
Cow	0.024	0.08
Sedan	0.11	0.40
Camper truck (28'long)	0.28	1.00
Large trailer-truck (65'x8.5'x13.5')	0.93	3.30
Large haystacker and 4wd tractor	0.89	3.10
3- strand fence (200' long)	0.30	1.10

Source: Conrad –Shelby Transmission Line EIS (DOE 1986)

Based on the length requirements set forth by the U.S. Department of Transportation, the longest permitted truck in Montana is 65 feet. This is also the longest anticipated vehicle under the proposed transmission line with a short-circuit current of 0.93 milliampere (mA)/kV/m. Large farm equipment, such as hay wagons, sprayers, and combines, would also have large short-circuit currents but would not exceed the NESC criterion of 5 mA. For example, a 130 foot sprayer would have an estimated worst case induced current at midspan of .79 mA. Under a worst case scenario, the short circuit current to the largest anticipated vehicle (a semi truck and trailer) is 3.3 mA, which is less than the NESC criterion of 5 mA. The transmission line will be designed to

accommodate the maximum height of a vehicle or piece of equipment passing under the line. If a person provides the only conducting path from the object to the ground, then the currents listed in **Table 3.4-2** flow through the person, when the person touches the object and the object is below the line. Based on the action alternative descriptions, all equipment being operated around the transmission line should be properly grounded. In summary, electric field health concerns are:

- *Steady-State Current Shock* – Steady-state currents are those that flow continuously after a person contacts an object, such as a vehicle, and provides a path to ground for the induced current. The effects of these shocks range from involuntary movement in a person to direct physiological harm. Steady-state current shocks occur in instances of direct or indirect human contact with an energized transmission line. An example of direct steady-state current shock would be similar to the incident that occurred when a young farm worker touched a grain auger to a transmission line while in contact with the auger. Based on the investigations by NIOSH following the incident, the current entered the worker through his hands and exited through his left foot. The worker therefore became the exit point for the steady state current.

- *Spark-Discharge Shocks* – Induced voltages appear on objects such as vehicles when there is an inadequate ground. If the voltage is sufficiently high, a spark-discharge shock would occur as contact is made with the ground. Spark-discharge shocks that create a nuisance occur in instances of carrying or handling conducting objects, such as irrigation pipe, near (not touching) transmission lines (EPRI 2001).

- *Field Perception and Neurobehavioral Responses* – When the electric field under a transmission line is sufficiently strong, it can be perceived by hair raising on an upraised hand. This is the effect of harmless levels of static electricity, similar to the effect of rubbing feet with socks on a carpet.

Other Safety Concerns

An additional safety concern in the immediate vicinity of electric power lines is the potential for people to climb support structures and either fall or receive a serious shock. Support structures can be designed in a manner to reduce unauthorized climbing of the structures by members of the public.

With the increasing trend of large farm equipment, sufficient clearance height should be considered to avoid contact with the lines either directly or indirectly, as provided by the National Electrical Safety Code.

Smoke can also be a conductor of electrical current. When a fire is in the vicinity of a 230-kV transmission line, current could potentially arc through the smoke. Downed or damaged power lines sometimes ignite fires.

Corona Effects

Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors. Corona is of concern for potential audible noise (60-cycle hum), radio, television, and GPS interference, visible light, and photochemical reactions. Corona can occur on the conductors, insulators, and hardware of an energized high-voltage transmission line. Corona on conductors occurs at locations where the field has been enhanced by protrusions, such as nicks, insects, or drops of water. During fair weather, the number of these sources is small and the corona effect is insignificant. However, during wet weather, the number of these sources increases and corona effects are much greater (DOE 2001). Corona effects of concern are listed below.

- *Audible Noise* – Corona-generated audible noise from transmission lines is generally characterized as a cracking/hissing noise. The noise is most noticeable during wet weather conditions. Audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the right-of-way. Refer to Section 3.12 for a description of existing noise in proposed Project area.

- *Radio, Television, and GPS Interference* – Corona-generated radio interference is most likely to affect the amplitude modulation (AM) broadcast band (535 to 1,605 kilohertz); frequency modulation (FM) radio is rarely affected. GPS units are operated at frequencies of 1575.42 megahertz (MHz) and 1227.6 MHz (Enge and Hatch 1996) and no interference is expected with the 60 Hz frequency associated with transmission lines. Only AM receivers located very near to transmission lines have the potential to be affected by radio interference. The potential for interference from corona effects is more severe during damp or rainy weather.

- *DGPS* – Some precision farm equipment in the analysis area is believed to use DGPS. DGPS receivers with differential correction receive a radio signal at frequencies between 285 to 325 kilohertz. Transmission line generated radio noise can occasionally exceed DGPS broadcast radio strengths, especially in bad weather (EPRI 2000). Likewise, gap generated discharge radio frequency noise that is broadband may occasionally exceed DGPS broadcast band signal strengths and can extend above 1 GHz into the GPS satellite signal band (EPRI 2000). Transmission lines may sometimes reradiate AM radio signals and may also degrade DGPS signal reception (EPRI 2000). Lastly, it is possible, but not very likely, that presence of a power line or support structure may scatter GPS signals and cause a temporary loss of lock on a satellite signal.

- *Visible Light* – Corona may be visible at night as a bluish glow or as bluish plumes. On the transmission lines in the area, the corona levels are so low that the corona on the conductors usually is observable only under the darkest conditions with the aid of binoculars.

- *Photochemical Reactions* – When coronal discharge is present, the air surrounding the conductors is ionized and many chemical reactions take place producing small amounts of ozone and other oxidants. Approximately 90 percent of the oxidants is ozone, while the remaining 10 percent is composed principally of nitrogen oxides. Refer to Section 3.11 for a description of existing air quality.

3.4.3 Environmental Impacts

This section discusses the potential human health and environment effects of the proposed Project. Potential impacts on human hearing are addressed in Section 3.12.

3.4.3.1 Alternative 1 – No Action

Under the No Action alternative, MATL would not build the proposed transmission line and associated facilities as proposed. There would be no incremental EMF exposure associated with the project. EMF exposure from existing transmission lines and household appliances would be expected to continue. There would be no corona effects associated with the project. There would be no associated safety issues regarding co-location with a natural gas or oil pipeline.

3.4.3.2 Alternative 2 – Proposed Project

Electric and Magnetic Field Effects. Alternative 2 would use single-circuit, H-frame structures, with two overhead shield wires. Three-pole structures would be used at medium and heavy angles, and dead ends, strung with 230-kV conductors. The spacing of the structures would be in the range of 500 to 1,600 feet apart. The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands, expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum clearance of 27.2 feet for the safe operation of farm equipment under the line.

Table 3.4–3 lists the EMF strength under normal anticipated load conditions for the 230-kV single-circuit transmission line using H-frame structures. For comparison, the EMF field strengths are also provided for monopole structures. These calculations are based on a maximum thermal capacity of 420 megavolt amperes. EMF strength is given for normal operating configurations that would be used by MATL. The electric field strengths and magnetic field strengths under normal operating conditions and optimized phasing configuration for transmission lines (H-frame structures) are shown in **Figure 3.4-2** and **Figure 3.4-3**, respectively (SNC-LAVALIN 2006). The distances given represent the distance of a receptor from the centerline of the transmission line and one meter above the ground. At a given distance, the electric and magnetic field strength would be nearly identical on both sides of the transmission line.

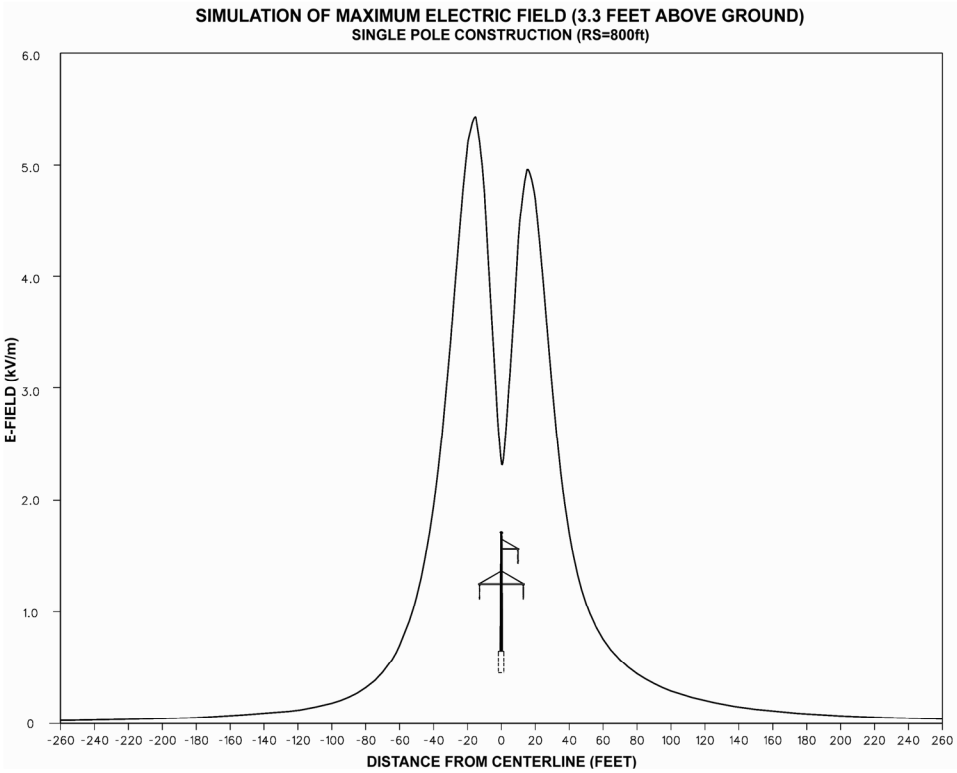
EMF effects are in **Table 3.4–3.** Long-term electric field exposure at the nearest residence to Alternative 2 (located within approximately 270 feet of the centerline) would be below the state of Montana standard of 1 kV/m at the edge of the right-of-way. The EMF strengths conform to those normally found in comparable lines. Most current exposure to EMF in the area is from household appliances. Average daily exposure to magnetic fields from some common household appliances is 0.08 (NIEHS 1999). The recommended biologically-based public exposure standard is 2 to 4 mG (BioInitiative Working Group 2007). Schools and commercial establishments would be located farther than 300 feet from the transmission line. The closest school to the transmission line would be Glacier Elementary at 0.86 mile to the west of Alternative 2. There are no known daycare centers, hospitals, or other areas of concentrated human occupancies near this alternative. Alternative 2 would produce EMF levels below the standard and within the biologically-based recommendation. Short-term exposures would still occur while working and driving under the transmission line.

TABLE 3.4-3
EMF EFFECTS

Structure Type	Location	Distance from Center Line (feet)	Electric Field (kV/m) (1 conductor side/2 conductor side)	Magnetic Field (mG) (1 conductor side/2 conductor side)
H-frame NESC Ground Clearance: 21.2 feet (27.2 feet for cultivated and CRP land)	Below Conductor	21.65	5.36	232.42
	Right-of-way Edge	52.5	5.39	70.57
	Alignment Edge	250	0.01	3.8
Monopole NESC Ground Clearance: 21.2 feet (27.2 feet for cultivated and CRP land)	Below Top Conductor	10.83	NA/ 4.44	NA/ 215.41
	Below Bottom Conductor	14.11	5.30/4.84	215.41
	Right-of-way Edge	52.5	4.78/4.29	48.67/42.25
	Alignment Edge	250	<0.01	<3.8

Note: Estimates calculated using Corona and Field Effects Program (Kingery 1991), and based on conductor ground clearance of 21.2 feet (NESC specification). The electric and magnetic fields would be somewhat less where the conductor height is above the minimums
kV/m = kilovolts per meter
mG = milligauss
NA = not applicable

Safety. As described in Section 3.4.2, the electric field created by a high-voltage transmission line extends from the energized conductors to other conducting objects such as the ground, towers, vegetation, buildings, vehicles, and people. Potential field effects can include induced currents, steady-state current shocks, spark discharge shocks, field perception and neurobehavioral responses and smoke and fire. The following describes the potential for effects on safety, and design measures that would be incorporated. The monopole steel structures are designed to deter climbing.



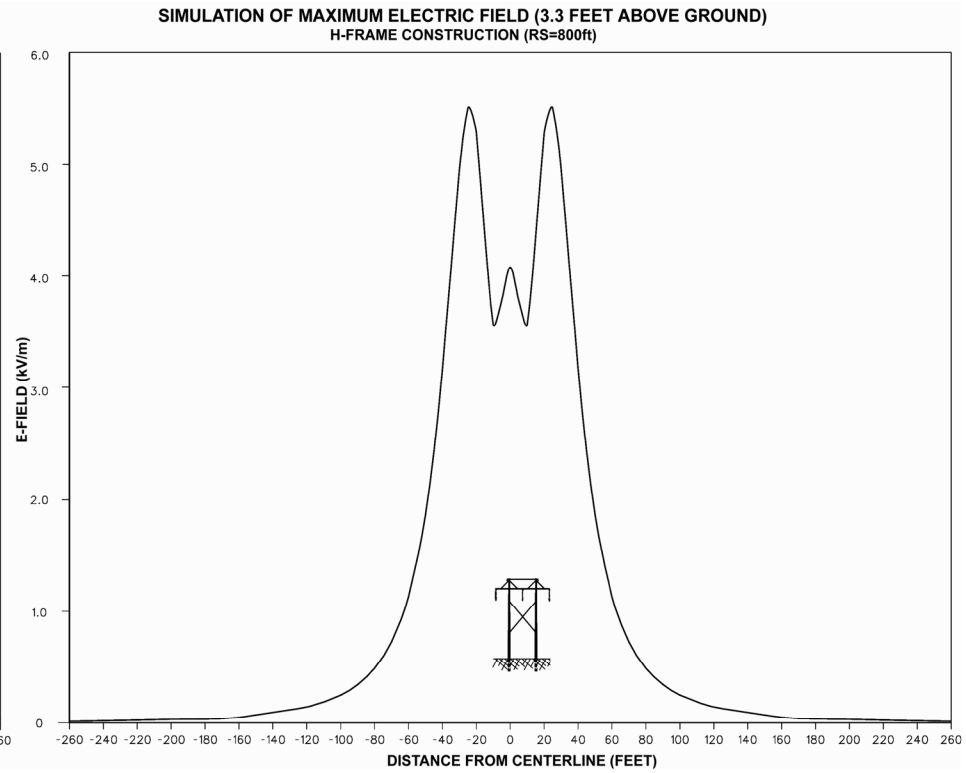
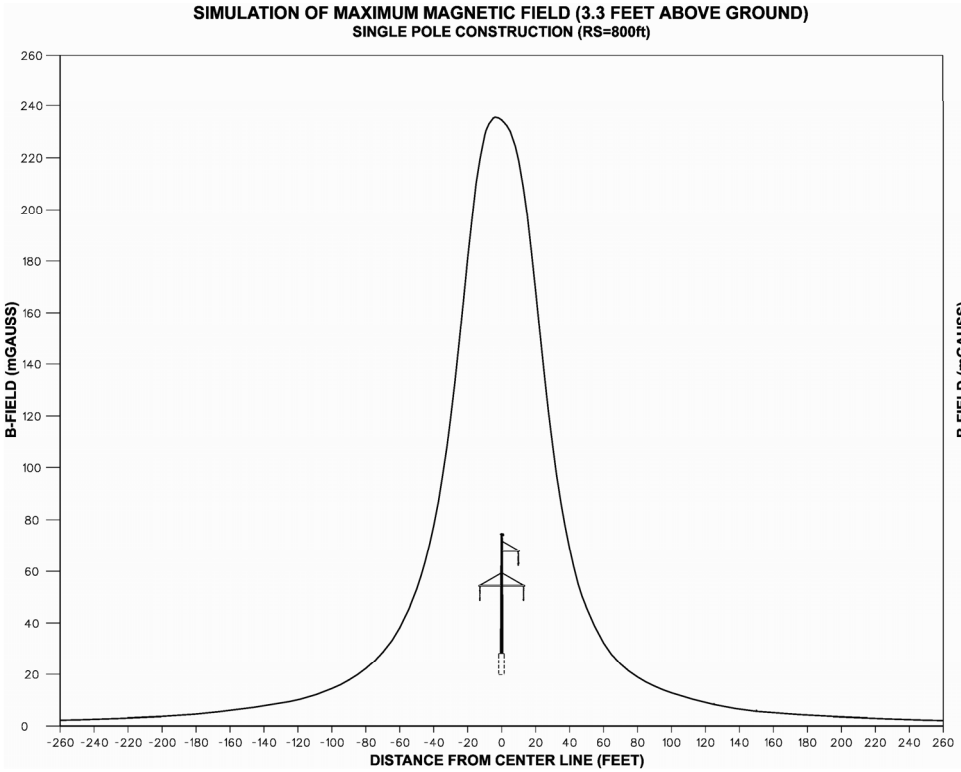


FIGURE 3.4-2
PROPOSED MATL POWERLINE
ELECTRIC FIELD STRENGTH FOR
NORMAL OPERATING CONDITIONS,
OPTIMIZED PHASING

E-Field - Electric Field
kV/m - Kilovolts per Meter

Figure 3.4-2_Electric Field Strength.dwg - DWH - 10/22/2007 - F5683-01



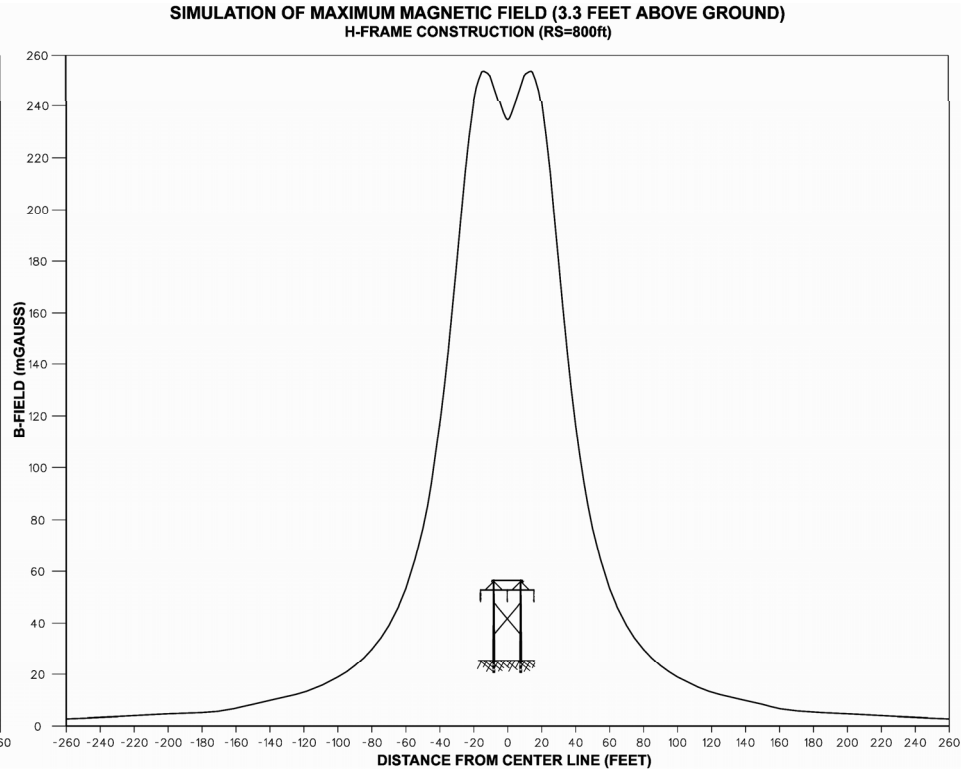


FIGURE 3.4-3
PROPOSED MATL POWERLINE
MAGNETIC FIELD STRENGTH FOR
NORMAL OPERATING CONDITIONS,
OPTIMIZED PHASING

B-Field - Magnetic Field
mGAUSS - Milligauss

Figure 3.4-3_Magnetic Field Strength.dwg - DWH - 10/22/2007 - F5683-01

Induced Currents. The 230-kV transmission line would have a minimum ground clearance of 21.2 feet to reduce the potential for induced current shocks. In addition, permanent structures in the right-of-way width, such as fences, gates, and metal buildings would be grounded.

Steady-State Current Shocks. Features reducing the level of potential for induced current in objects near the transmission line also reduce the level of a possible induced current shock. The proposed lines would be constructed in accordance with industry and MATL standards to minimize hazardous shocks from direct or indirect human contact with an overhead, energized line. The proposed line is expected to pose minimal hazards to humans.

Spark Discharge Shocks. The magnitude of the electric field would be low enough that spark discharge shocks would occur rarely, if at all. The potential for nuisance shocks would be minimized through standard grounding procedures. Carrying or handling conducting objects, such as irrigation pipe, under transmission lines can result in spark discharges that are a nuisance. The primary hazard with irrigation pipes or any other long objects, however, is electrical flashover from the conductors if the section of pipe is inadvertently tipped up near the conductors. In order to minimize these effects, the transmission line would be constructed using the NESC minimum ground clearance. The use of farm augers under power lines should be consistent with the guidelines presented by the Occupational Health and Safety Administration (OSHA).

Field Perception and Neurobehavioral Responses. Perception of the field associated with the transmission lines would not be felt beyond the edge of the right-of-way. Persons working in the right-of-way might feel the field. Studies of short-term exposure to electric fields have shown that fields may be perceived (for example, felt as movement of arm hair) by some people at levels of about 2 to 10 kV/m, but studies of controlled, short-term exposures to even higher levels in laboratory studies have shown no adverse effects on normal physiology, mood, or ability to perform tasks (DOE 2001a). The International Commission on Non-Ionizing Radiation Protection Guidelines recommend that short-term exposures be limited to 4.2 kV/m for the general public (International Commission on Non-Ionizing Radiation Protection 2003). The maximum exposures associated with the proposed Project are less than 1.67 kV/m at the edge of the right-of-way for an H-frame and 1.2 kV/m for a monopole (**Figure 3.4-2**)

The ground clearance of the conductors would be a minimum of 21.2 feet, adequate clearance for safety considerations as related to most recreational activities.

Smoke and Fire. When a fire is in the vicinity of a 230-kV transmission line, firefighters should monitor smoke near the transmission line. Firefighters should remain at a distance that would not leave them vulnerable to the electric current or shock.

Corona Effects. Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors. As described in Section 3.4.2, corona is of concern for potential audible noise, radio, television, and DGPS interference, visible light, and photochemical reactions.

Audible Noise. Noise levels generated by the transmission lines would be greatest during damp or rainy weather. For the proposed lines, low-corona design established through industry research and experience would minimize the potential for corona-related audible noise. The proposed lines would not add substantially to existing background noise levels in the area. Research by the Electric Power Research Institute (1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-foot safety zone. During rainy or damp weather, an increase in corona-generated audible noise would be balanced by an increase in weather-generated noise. For additional assessment of the noise from the proposed Project and alternatives, refer to Section 3.12.

Radio, Television, DGPS Interference. Transmission line-related radio-frequency interference is one of the indirect effects of line operation produced by the physical interactions of transmission line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. The line would be constructed according to industry standards, which minimize the potential for surface irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware, and other irregularities around the conductor surface that would increase corona effects. However, if such corona interference were to be generated, no interference-related complaints would be expected given the distance of residents from the transmission lines. Federal Communications Commission regulations require each project owner to ensure mitigation of stationary radio and television interference to the satisfaction of the affected individual. Typical mitigation measures include: cleaning insulators, tightening line hardware, inspecting conductor surface for irregularities, relocating antennas, installing high-gain or directional antennas, connecting to a cable system or installing a translator station.

Transmission lines generated radio noise may degrade DGPS signal reception (EPRI 2000) which could possibly affect precision farm equipment. Manufacturers have different methods of shielding DGPS signals; therefore, each receiver would react differently in the environment surrounding power lines. Damaged power lines may cause interference with DGPS signals.

Visible Light. The corona levels associated with the proposed transmission line would be similar to those of existing transmission lines. The visible corona on the conductors would be observable only under the darkest conditions with the aid of binoculars.

Photochemical Reactions. The maximum incremental ozone levels at ground level produced by corona activity on the proposed transmission line would be similar to those produced by the existing lines in the area. During damp or rainy weather the ozone produced would be less than 1 part per billion. This level is low when compared to natural levels and their fluctuations (DOE 2001a).

Corona would be mitigated by using proper line design and by incorporating line hardware shielding. The design of electrical hardware and equipment considers the potential for corona effects.

Safety of Co-locating a Transmission Line and a Pipeline. There are a number of potential safety issues associated with constructing a transmission line near a buried natural gas or crude oil pipeline, related to electrical shock hazard and natural gas pipeline leaks and fire or explosion hazards should a natural gas leak occur.

A buried pipeline that shares an alignment with an alternating current transmission line, such as the one proposed for the project, could become energized by the EMF surrounding the power system in the air and soil. This alternating current interference may result in an electrical shock hazard for people touching the pipeline or metallic structures connected to the pipeline, and may cause damage to the pipeline coating, insulating flanges, or even damage to the pipeline's wall itself (Dawalibi 2004). However, the natural gas or oil pipelines would not carry electricity or otherwise present a shock hazard to residential gas users.

The transmission line would cross over several pipelines. Therefore, where feasible, a minimum distance of 132 feet from any above ground structures such as wellheads, would be maintained between the proposed transmission line and the edge of an existing pipeline right-of-way or the pipe itself. Additional mitigation measures that could be implemented by the pipeline companies or MATL include grounding mats, gradient wire controls, gradient control mats or grids and/or the installation of a cathodic protection system to the pipelines to minimize shock hazard and damage to the pipelines. MATL would consult with pipeline owners about the proposed Project and once an exact location for the structures is determined, MATL would help to implement the appropriate mitigation measure (MATL 2006b). In addition, the transmission line would comply with all Federal and State regulations concerning co-locating a transmission line near a buried gas pipeline (Dawalibi 2004).

There are potential safety issues associated with construction and maintenance vehicles driving over any gas or oil pipelines. MATL would consult with any pipeline owner after final siting of the transmission line structures regarding this issue (MATL 2006b).

3.4.3.3 Alternatives 3 and 4 – MATL B and Agency Alternative

Alternatives 3 and 4 would also involve the construction of 230-kV single-circuit transmission lines. **Table 3.4-3** lists the EMF strength under normal anticipated load conditions for the 230-kV single-circuit transmission line. **Figures 3.4-2** and **3.4-3** graphically illustrate the maximum electric and magnetic field strengths, respectively, for the optimized phasing configuration of the transmission lines. Field strengths under normal operating conditions are expected to be lower. The distances given represent the distance of a stationary receptor from the centerline of the transmission line. The Conrad Christian School is the closest school to any of the alternatives and is 0.4 mile to the northeast of Alternative 3. At a given distance, the EMF strength would be nearly identical on both sides of the transmission line right-of-way width. Impacts described in Alternative 2 would be similar to those under Alternatives 3 and 4; however, the number of residences and the distances from the transmission line would be slightly different.

3.5 Water Resources

3.5.1 Analysis Methods

Surface water resources in the study area were evaluated using a GIS analysis for each alternative to identify locations where an alignment would cross a water body. For this evaluation it was assumed that:

- Disturbance for each alternative alignment could be within 250 feet to either side of the reference centerline.
- The probability for temporarily increasing sources of sediment to surface water is proportional to the number of water body crossings.

Since none of the action alternatives propose any beneficial use of groundwater and no project element has been identified that could possibly affect groundwater quality, groundwater resources are not considered for impact analysis.

Information Sources

Data on water resources in the analysis area were obtained from a variety of sources including literature review, reports from the Montana Natural Heritage Program (NHP), the DEQ 2006 Integrated 303(d)/305(b) Water Quality Report, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the Montana NRIS, and the MFSA application (MATL 2006b). Surface water flow and quality information was obtained from the USGS, the MBMG, and DEQ. To the degree possible, information was verified by ground reconnaissance during a team field trip May 17-18, 2006.

Analysis Area

The water resources analysis area is the same as the study area and encompasses about 2,260 square miles in northcentral Montana from the Montana-Alberta border to the Great Falls area (**Figure 1.1-1)**. This region includes portions of eight hydrologic subbasins in Montana, all of which contribute to the lower Missouri River Basin (**Figure 3.5-1)**.

The primary surface waters in the analysis area are Cut Bank Creek, the Marias River and the Dry Fork Marias River, Pondera Coulee, the Teton River, Benton Lake, Hay Lake, and the Missouri River. Isolated prairie potholes, lakes, and stock reservoirs are scattered throughout the analysis area.

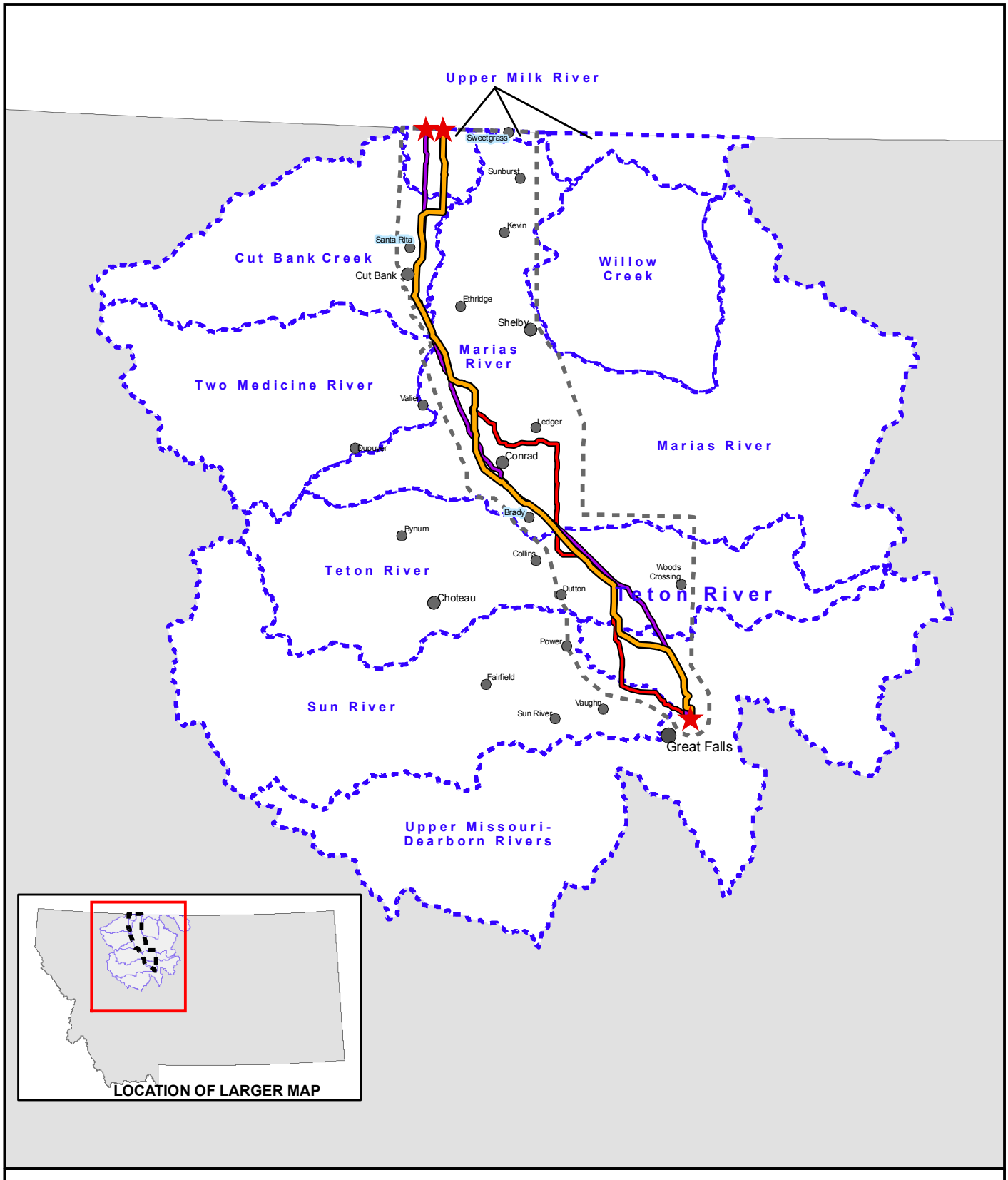


FIGURE 3.5-1
WATERSHEDS INTERSECTING THE STUDY AREA

LEGEND

- MAJOR WATERSHEDS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_5-1_MATL_Water_Study_Area_letter_012207.mxd

3.5.2 Affected Environment

The water resources analysis area is generally one of low topographic relief, low precipitation, and agricultural vegetation types. Elevations range from about 4,372 feet above sea level in the northwest corner of the analysis area to about 3,016 feet above sea level on the Missouri River in the southeast corner of the analysis area.

Precipitation and Recharge

The region is semi-arid and precipitation patterns do not vary widely throughout the analysis area. Average annual precipitation varies from 11.6 inches per year near Cut Bank to 15.2 inches per year near Great Falls (Western Regional Climate Center [WRCC] 2006). Winters can be extremely cold with desiccating winds and snow. May and June are the wettest months. Perennial streams and rivers are sustained primarily with moisture from mountain snowpack.

Activities that Affect Resource Conditions

Water resources of the analysis area, including both surface water and groundwater, are affected directly or indirectly by human activities such as irrigation, livestock use, industry, oil and gas development, domestic consumption, and to a lesser extent by recreation and transportation. These interdependencies can affect human health, wildlife, engineered structures, and economics of the region. The primary beneficial uses of water in the analysis area include agriculture, support of domestic activities, and fish and aquatic life.

Water Quality

No specific areas of water quality problems have been recorded in the analysis area other than impaired water bodies identified by DEQ. The Federal Clean Water Act, Section 303(d) requires that each state submit a biennial report to the EPA that identifies water bodies that are water quality limited. The resulting 303(d) list provides the basis for systematically tracking state waters that do not meet water quality standards. Streams and rivers designated as 303(d) or impaired streams in the analysis area are: Old Maids Coulee (an intermittent stream), Pondera Coulee, Cut Bank Creek, Marias River, Teton River, Lake Creek, and the Missouri River. The 303(d) streams are shown on **Figure 3.5-2.** Benton Lake is listed as "impaired." Summary sheets describing the impaired river segments, the type of impairment, and the cause of the impairment are provided in **Appendix I**.

N

0 4 Miles

OLD MAIDS COULEE

City of Cut Bank

Devon Water Inc

MARIAS RIVER

MARIAS RIVER

DRY FORK

PONDERA COULEE

Tiber County Water District
Conrad Water Department

Brady County Water District

TETON RIVER

LETHBRIDGE

ALBERTA

MONTANA

CUTBANK

Glacier National Park

Lewis and Clark National Forest

GREAT FALLS

Power Teton County Water District

LAKE CREEK

MISSOURI RIVER

City of Great Falls

FIGURE 3.5-2
HYDROLOGIC FEATURES AND WATER QUALITY

LEGEND

- MUNICIPAL POTABLE WATER SOURCE (DEQ)
- RIVERS AND STREAMS
- IMPAIRED 303(d) STREAMS
- LAKES AND PONDS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_5-2_MATL_Water_Quality_012207.mxd

Water Rights

Existing water rights would not be affected by the proposed Project.

Surface Water

The analysis area is located within the Missouri-Marias watershed subregion in west central Montana. Portions of the analysis area fall within one or more of the following 4th level hydrologic unit codes (HUC): Upper Milk River, Cut Bank Creek, Marias River, Two Medicine River, Willow Creek, Teton River, Sun River and Upper Missouri-Dearborn rivers (USGS 2006a). Surface water flow data used in the analysis were retrieved from the USGS website (USGS 2006c).

One water body within the analysis area has been identified by the FWP as a blue ribbon or red ribbon fishery river depending on the stream reach (Missouri River). The locations at which all three alternatives cross the Marias and Teton rivers are considered habitat class 3 and sport class 4 fisheries. Some streams in the analysis area are perennial (typically have surface flow throughout the year). These streams are shown on **Figure 3.5-2**. However, most other streams in the analysis area are either ephemeral (flow only in response to snowmelt or rainfall) or intermittent (flow only in response to groundwater discharge and precipitation). There are numerous intermittent streams, lakes, reservoirs, and prairie potholes in the analysis area. A summary of surface water resources and water quality in the analysis area organized by HUC is provided in **Appendix J**. Surface water quality is also summarized in **Figure 3.5-2**.

Lakes and Reservoirs

The analysis area contains a number of lakes and reservoirs; however, there are some portions of the analysis area that are nearly devoid of lakes, such as the area between Benton Lake and the Teton River.

All surface water bodies of at least 5 acres crossed by an alternative alignment are in **Figure 3.5-2.** The largest of these water bodies is Benton Lake, in the southeastern portion of the analysis area. Benton Lake is a glacially formed 5,000-acre shallow wetland. Other large lakes include Aloe Lake and Hay Lake, both of which are located north of the Marias River. Numerous smaller lakes are found throughout the area. **Appendix J** lists the lakes in the analysis area that are at least 20 acres in size and all lakes greater than 5 acres that are crossed by one of the action alternatives.

Municipal Water in the Analysis Area

Most of the municipal water systems in the study area are supplied by groundwater sources, while a smaller number are supplied by surface water sources. Municipal watersheds with potable surface water bodies include the Cut Bank Watershed (Cut Bank Creek) and the Marias Watershed.

There are six water districts within the analysis area that rely on surface water for potable water. These include Cut Bank, Devon Water, Inc., Tiber County Water District (Conrad Water Department), Brady County Water District, Power Teton County Water District, and the City of Great Falls.

3.5.3 Environmental Impacts

Water resources and associated infrastructure that potentially could be affected by the proposed Project include perennial streams and rivers, ephemeral and intermittent drainages, floodplains, irrigation ditches, and canals. Temporary impacts to water are categorized as lasting less than 30 days, short-term impacts are less than 1 year, and long-term impacts are greater than 1 year. Adverse impacts to water (if they occur) would be considered major if they meet one or more of the following criteria:

- If the expected water use would exceed the capacity of the potable water system for a community or individual,
- If the quantities of stream flow affecting downstream beneficial uses would be altered,
- If groundwater withdrawals would affect either the quantity or quality of existing water supply wells within a 1-mile radius of the proposed withdrawal location,
- If stream bank disturbance would result in pronounced sedimentation or if disturbance would cause streambed erosion or sedimentation,
- If wastewater discharge would result in erosion contributing to sedimentation in surface water,
- If an alternative would result in a reduction in the quantity or quality of water resources to below Montana water quality standards or in violation of a TMDL plan for existing or potential future uses, and,
- If the proposed Project or alternatives would cause substantial flooding or erosion, or subject people or property to flooding or erosion.

All project alternatives were evaluated to identify adverse impacts to water resources using these criteria. No major impacts to water resources are predicted for any of the action alternatives. The only minor issue is the potential for soil erosion that could contribute to higher levels of suspended sediment at water body crossings. A comparison of alternatives showing the number of crossings is provided in **Table 3.5-1**.

TABLE 3.5-1 HYDROLOGY – COMPARISON OF ALTERNATIVES					
Alternative	**Linear Miles**	**Mileage Difference Compared to Alternative 2**	**Stream or River Crossings[a]**	**Lake Crossings[a]**	**Total Crossings[a]**
1	0	Not Applicable	0	0	0
2	129.9	Not Applicable	10	4	14
3	121.6	8 miles shorter	6	6	12
4	139.6	10 miles longer	17	2	19

Note: [a] A crossing is assumed if a water body is within 250 feet of the reference centerline, the width of the alignment that DEQ would approve. Actual disturbance from construction would typically be less than 100 feet wide as indicated in **Table 2.3-1**.

Figure 3.5-2 shows the locations of crossings for each alternative. The suspended sediment issue is further discussed below.

3.5.3.1 Alternative 1 — No Action

Under the No Action alternative, the existing water use and land use activities near surface water would continue. Activities described under the action alternatives would not take place. Since there would not be an alteration to area water resources due to transmission line installation and maintenance there would be no impacts to water resources.

3.5.3.2 Alternative 2 — Proposed Project

Impacts to Surface Water and Floodplains

Despite implementation of a storm water pollution prevention plan (SWPPP), Alternative 2 would likely result in minor, short-term, adverse impacts to surface water quality by temporarily increasing sources of sediment during the construction phase of the proposed Project. Stream crossing construction activities (such as pole placement, road construction, and staging areas for construction) could potentially take place in either a localized area, or parallel and adjacent to a stream. Construction activities in flowing or standing water would result in the greatest impact, and would be avoided. Minor short-term sediment impacts would continue until reclamation was complete and the surface was revegetated. Minor long-term adverse impacts to surface water quality could occur if temporary roads near water crossings were constructed and remained in use after project construction activities were complete.

The Alternative 2 alignment would cross up to 14 bodies of water, including eight perennial streams (Teton River, Pondera Coulee, Spring Coulee, Dry Fork Marias, Schultz Coulee, Bullhead Creek, Marias River, and Red River [three crossings]; and four

lakes ranging in size from 7 acres to 121 acres (Black Horse Lake [west finger], an unnamed lake in the Marias River Basin, Hay Lake, and Grassy Lake).

Alternative 2 includes measures to mitigate or prevent adverse impacts to surface water. Structures would not be installed below the normal high-water mark. MATL proposes to prepare and implement a SWPPP and comply with all requisite permit conditions. These measures would effectively reduce short-term and long-term risk of sedimentation to surface water to minor adverse impacts.

3.5.3.3 Alternatives 3 and 4

Alternative 3

Adverse, short-term impacts for Alternative 3 are similar to, but slightly less than, Alternative 2. Overall, there is less potential to generate suspended sediment for Alternative 3.

The Alternative 3 alignment would cross bodies of water only 12 times, including six perennial streams (Teton River, Pondera Coulee, Spring Coulee, Dry Fork Marias, Bullhead Creek, and Marias River) and six lakes ranging in size from 7 acres to 116 acres (Black Horse Lake [west finger], an unnamed lake in the Missouri Sun-Smith Basin, two unnamed lakes in the Marias River basin, and two unnamed lakes in the Upper Milk River Basin).

Alternative 4

Adverse, short-term impacts for Alternative 4 are similar to, but slightly more than Alternative 2 and Alternative 3. Overall, there is more potential to generate suspended sediment for Alternative 4.

The Alternative 4 alignment would cross bodies of water up to 19 times, including eight perennial streams (Lake Creek, Pondera Coulee, Spring Coulee, Dry Fork Marias, Schultz Coulee [two crossings], Bullhead Creek, the Marias River, and Red River [three crossings]; and two lakes ranging in size from 115 acres to 121 acres (Hay Lake and Grassy Lake). Additional mitigation measures would be needed to reduce impacts at the stream crossings.

3.5.3.4 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.6 Wetlands and Floodplains

3.6.1 Analysis Methods

Wetlands are lands transitional between terrestrial and aquatic systems and are among the most biologically productive ecosystems in the world. Wetlands are defined as areas that are inundated or saturated by surface or groundwater at frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, fens, marshes, bogs, and similar areas (COE 1987). Under Executive Order 11990 (May 24, 1977), *Protection of Wetlands*, Federal agencies are required to consider the impact of proposed actions on wetlands.

Floodplains are defined in 10 CFR 1022.4 as "those portions of riverine and coastal floodplains nearest the source of flooding that are frequently flooded and where the likelihood of flood losses and adverse impacts on the natural and beneficial values served by floodplains is greatest." Under Executive Order 11988 (May 24, 1977), *Floodplain Management*, Federal agencies are required to consider the impact of proposed actions on floodplains. To the extent possible, DOE has established policy and procedures under 10 CFR 1022 and Executive Orders 19988 and 19990 through applicable NEPA procedures such as this document.

Wetlands and floodplains are of critical importance to the protection and maintenance of a large array of plants and animals, including threatened and endangered species, by providing essential seasonal habitats. Wetlands and floodplains help protect the quality of surface water by impeding the erosive forces of moving water and trapping waterborne sediment and associated pollutants, protecting water supplies by assisting the purification of surface water and groundwater resources, maintaining base flow to surface waters through the gradual release of stored floodwaters and groundwater, and providing a natural means of flood control and storm damage protection through the absorption and storage of water during high-runoff periods.

Activities that involve a disturbance or backfilling of material in a wetland are typically regulated by local, state, and Federal government agencies through the authorities granted by Sections 401 and 404 of the U.S. Clean Water Act. Section 401 of the Clean Water Act provides the means for Montana local and state agencies to regulate and control the degree of impact of discharges on state waters, including wetlands. Montana's primary water quality protection is granted through the implementation of the Montana Water Quality Act. Section 404 of the Clean Water Act provides protection for wetlands that (1) meet three criteria (wetland hydrology, hydric soils, and hydrophytic vegetation) as defined in the Wetlands Delineation Manual (COE 1987), and (2) are connected through an inflow or outflow to a defined surface water drainage. Isolated wetlands, such as a prairie pothole or

small ponds, are no longer protected by Section 404 of the Clean Water Act (COE 2001). However, any discharge of pollutants to isolated wetlands that contain water is still subject to provisions of the Montana Water Quality Act.

Analysis Area

The analysis area for the wetland and floodplain resources includes all wetlands (jurisdictional or non-jurisdictional) within the Project study area and regulatory floodplains within the alternative alignments (**Figure 1.1-1**). MATL has stated its goal is to avoid all impacts to floodplains and would be able to meet this goal by avoiding placement of any structure (or related construction impact) within a regulatory floodplain or below the ordinary high water mark (MATL 2006b). Jurisdictional wetlands and floodplains are defined in the glossary.

Information Sources

Wetlands within the Project study area are available from a FWS website (FWS 2006) on a format known as National Wetland Inventory (NWI) maps. Floodplains are delineated by the Federal Emergency Management Agency (FEMA) for the National Flood Insurance Program with the information provided on Flood Insurance Rate Maps (FIRM). Some Montana counties, or portions of counties, have FIRMs available to download from the Montana NRIS website.

Not all unincorporated areas of the Project study area have been mapped or have floodplain maps on record. Cascade County has FIRMs available, but no specific floodplains are identified in Cascade County for the action alternatives. Teton County also has FIRMs available that identify the regulatory floodplains along the Teton River. FIRMs are not available for unincorporated parts of Pondera County, and the floodplain for the Marias River is not available for Pondera County. However, the Marias River floodplain in Glacier County has been delineated, and the flood hazard areas are shown on a FIRM for that area. Additional topographic information was noted during site visits to the Marias River crossing location on May 18, 2006 and the Teton River crossing location on April 27, 2007.

Other sources of data, including USGS 7.5-minute topographic maps, other FEMA maps, USGS Montana Flood-Frequency and Basin-Characteristic Data (http://mt.water.usgs.gov/freq?page_type=site&site_no=06108000) and the 2005 orthophotographs (Montana NRIS 2006a), were used. In addition, the data provided in the MFSA application (MATL 2006b) were reviewed, and field investigations were conducted in July and August 2005 to ground-truth mapped wetlands and identify previously unmapped wetlands.

3.6.2 Affected Environment

The system used to classify the wetland types is based on the classification system developed by Cowardin and others (1979). Three basic types of wetlands, lacustrine (lakes), palustrine (ponds), and riverine (rivers and streams), were identified within the analysis area. Within these three types were 14 individual wetland classes (**Table 3.6-1**). The lacustrine wetlands include intermittent and permanently flooded lakes and reservoirs. The palustrine group includes all wetlands dominated by trees, shrubs, emergents, mosses, or lichens. Two main riverine wetlands (lower perennial and upper perennial) were identified within the analysis area. They typically contain natural or artificial channels that have either periodically or continuously flowing water. The mapped riverine wetland type generally corresponds with the same areas delineated as flood hazard areas on the FIRM for the Teton River crossing.

TABLE 3.6-1
WETLAND TYPES MAPPED IN ANALYSIS AREA

No.	Wetland Types	Wetland Class	Wetland Code
1	Lacustrine/Limnetic	Unconsolidated Bottom	L1UB
2	Lacustrine/Littoral	Aquatic Bed	L2AB
3	Lacustrine/Littoral	Unconsolidated Shore	L2US
4	Palustrine	Aquatic Bed	PAB
5	Palustrine	Emergent	PEM
6	Palustrine	Forested	PFO
7	Palustrine	Scrub-Shrub	PSS
8	Palustrine	Unconsolidated Bottom	PUB
9	Palustrine	Unconsolidated Shore	PUS
10	Riverine/Lower Perennial	Unconsolidated Bottom	R2UB
11	Riverine/Lower Perennial	Unconsolidated Shore	R2US
12	Riverine/Upper Perennial	Rock Bottom	R3RB
13	Riverine/Upper Perennial	Unconsolidated Bottom	R3UB
14	Riverine/Upper Perennial	Unconsolidated Shore	R3US

The following factors were considered when evaluating potential impacts to wetland and non-wetland waters of the U.S. from the transmission line alternatives:

- Net permanent loss of any wetland areas or functions,
- Net temporary loss of any wetland areas or functions,
- Effects on the condition and functional integrity of other wetlands that may be impacted but do not experience net loss,
- Potential for wetland filling from grading or construction activity or excavation and backfill,

- Potential for wetland flooding from construction activities, incorrect design or placement of culverts, or an increase in impervious areas adjoining wetlands that may raise water levels,
- Potential for wetland draining from grade changes that may divert surface flow that formerly fed wetlands in isolated depressions,
- Potential for wetland sedimentation resulting from surface soil disturbance adjacent to wetlands, and
- Wetland water quality degradation from contaminants in runoff.

Table 3.6-2 provides a percentage and area breakdown for all 14 wetland types that are sited in the analysis area. There are a total of 36,711 acres of wetlands within the analysis area. **Figures 3.6-1, 3.6-2, and 3.6-3** show the location of all mapped wetlands within the study area.

TABLE 3.6-2
PERCENTAGE AND AREA OF WETLAND TYPES IN ANALYSIS AREA

Wetland Type	Percent of Total Wetland Area	Area (acres)
Lacustrine/Limnetic – L1UB	1.1	401
Lacustrine/Littoral – L2AB	3.9	1,429
Lacustrine/Littoral – L2US	10.6	3,909
Palustrine – PAB	5.2	1,911
Palustrine – PEM	69.9	25,649
Palustrine – PFO	0.02	7
Palustrine – PSS	0.4	149
Palustrine – PUB	0.3	106
Palustrine – PUS	3.4	1,240
Riverine/Lower Perennial – R2UB	2.7	1,002
Riverine/Lower Perennial – R2US	1.2	457
Riverine/Upper Perennial – R3RB	0.01	5
Riverine/Upper Perennial – R3UB	1.0	346
Riverine/Upper Perennial – R3US	0.3	100
Totals	**100.0**	**36,711**

N

0 3 Miles

Dutton

Woods Crossing

Power

Vaughn

Great Falls

15

87

FIGURE 3.6-1
WETLANDS IN STUDY AREA SOUTH REVISED

LEGEND

WETLAND TYPE
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED - SHRUB WETLAND
- FRESHWATER POND
- RIVERINE WETLAND
- OTHER WETLAND
- LAKE
- 24K TOPO MAPS WITH NO WETLANDS DATA

NOTE: WETLANDS DATA FROM NATIONAL WETLANDS INVENTORY, USFWS.

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- RIVERS AND STREAMS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_6-1_MATL_Wetlands_South_REV_072808.mxd

Shelby
Valier
Ledger
Conrad
Brady
Collins
Dutton
2
44
15
N
0
4
Miles

FIGURE 3.6-2
WETLANDS IN STUDY AREA MIDDLE

LEGEND

WETLAND TYPE
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED - SHRUB WETLAND
- FRESHWATER POND
- RIVERINE WETLAND
- OTHER WETLAND
- LAKE
- 24K TOPO MAPS WITH NO WETLANDS DATA

NOTE: WETLANDS DATA FROM NATIONAL WETLANDS INVENTORY, USFWS.

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- RIVERS AND STREAMS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_6-2_MATL_Wetlands_middle_012007.mxd

N

0 4 Miles

Sunburst

Kevin

Santa Rita

Cut Bank

Ethridge

Shelby

Valier

2

15

44

FIGURE 3.6-3
WETLANDS IN STUDY AREA NORTH

LEGEND

WETLAND TYPE
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED - SHRUB WETLAND
- FRESHWATER POND
- RIVERINE WETLAND
- OTHER WETLAND
- LAKE
- 24K TOPO MAPS WITH NO WETLANDS DATA

NOTE: WETLANDS DATA FROM NATIONAL WETLANDS INVENTORY, USFWS.

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- RIVERS AND STREAMS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_6-3_MATL_Wetlands_North_012007.mxd

Palustrine wetlands are the most common wetland type in the analysis area and are primarily found along creek channels, coulees, and in association with prairie potholes formed by depressions left by glaciation. Coulees often have a flat-bottomed valley enclosed by somewhat steep hillsides with the wetland areas generally restricted to the narrow incised stream channel (MATL 2006b). Many of the prairie potholes are less than 1 acre in size and may have permanent, semipermanent, or seasonal to temporary inundation (Montana Partners in Flight 2000). Prairie potholes can either be landlocked or have a drainage outlet to an adjacent stream or other potholes.

The palustrine emergent wetlands account for approximately 70 percent of the total wetlands (**Table 3.6-2**). Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytic vegetation and are often dominated by perennial plants (Cowardin and others 1979). Drainages in the MATL analysis area contain overstory vegetative communities comprised of trees and shrubs, such as boxelder (*Acer negundo*), silver sagebrush, chokecherry, Woods' rose, willow, silver buffaloberry, and western snowberry (MATL 2006b). The palustrine emergent wetland areas are found primarily along the current channels and in older meander lobes within the drainage valley. Palustrine emergent vegetation may occur as an understory component in areas mapped as riparian or forested sections of the drainage. Where not previously cultivated, the vegetation types in the prairie pothole wetlands within the analysis area are dominated by herbaceous communities, including water sedge (*Carex aquatilis*), clustered field sedge (*Carex praegracilis*), narrow spike reedgrass (*Calamagrostis stricta*), Baltic rush (*Juncus balticus*), and tufted hairgrass (*Deschampsia caespitosa*), as well as shrubby cinquefoil (*Dasiphora floribunda*) (MATL 2006b).

Most of the prairie potholes in the analysis area have standing water for much of the growing season in years of normal or above normal precipitation. These depressional geomorphic features capture water from precipitation, snowmelt, and from groundwater (Hansen and others 1995). Typically the water is retained in the potholes due to a bottom soil layer with reduced permeability. Evaporation and transpiration are the major causes of water loss, although seepage and surface outflow can also be sizable for some potholes (Hanson and others 1995). However, during dryer periods, some portions of potholes often become incorporated into farming plans and are either planted to row crops (for example wheat) or are mowed as part of a haying operation. Prairie pothole wetland losses are estimated to be from 30 to 50 percent in Montana (Montana Partners in Flight 2000). Prairie pothole wetlands are often difficult to delineate and characterize because the wetland indicators and other parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events (COE 1987). Prairie potholes occur throughout the analysis area; however, the potential to encounter prairie potholes declines in the southern portion of the analysis area due to changes in geomorphology and to agricultural practices that may have impacted or eliminated the smaller wetlands.

The most notable lacustrine wetland area in the analysis area is found in the southern portion. Benton Lake NWR is located about 10 miles north of Great Falls. It is at the western edge of the farmed Prairie Pothole region, a region characterized by millions of wetlands or potholes, which serve as the breeding ground for most of the nation's waterfowl (MATL 2006b). The 19-square-mile Benton Lake NWR was established in 1929 as a refuge and breeding ground for birds. Despite its name, Benton Lake is actually a 5,000-acre shallow wetland created by the last continental glacier thousands of years ago. During the late 1950s and early 1960s, a pump house and pipeline were built to bring water to the refuge from Muddy Creek. Dikes were built to divide the wetland into manageable units, and refuge roads and facilities were constructed. Water still flows from the original pump station on Muddy Creek, but the refuge wetlands have been further divided for more efficient water management.

The wetland areas provide valuable tree and understory plant diversity, stable coulee bottoms that can attenuate and alter flood flows, and valuable breeding areas for duck species, eared, horned, and red-necked grebes, Franklin's gull, Forster's terns, black terns, yellow-headed blackbirds, and Wilson's phalaropes. MATL project wetlands also provide important habitat for nesting and foraging for many birds and other wildlife species. In particular, the 5,000 acres of shallow wetlands associated with the Benton Lake NWR area are managed primarily to provide refuge and breeding ground for birds.

The riverine wetland types mapped within the analysis area are the seasonally and permanently flowing river channel bottoms associated with the Teton River, Pondera Coulee, Spring Coulee, Dry Fork Marias, Schultz Coulee, Bullhead Creek, Marias River, and Red River. The Marias, Dry Fork Marias, and Teton rivers support the most important forested riparian habitats in the analysis area (MATL 2006b). The riverine habitats typically have an understory of grasses and shrubs with an overstory of cottonwood trees (plains cottonwood and narrowleaf cottonwood) and other larger deciduous shrubs and trees (chokecherry, wild currant, Woods' rose, and willows) that intermittently line the rivers.

3.6.3 Environmental Impacts to Wetlands

This section describes the types of impacts that could occur and effects of these impacts on wetland resources specifically. **Table 2.3-4** addresses best management practices that MATL would implement to reduce potential impacts to wetlands and surface water resources.

Potential impacts to wetlands associated with the construction and operation of the MATL 230-kV transmission line project include:

- alterations to the wetland hydrology,
- alterations to the wetland plant communities, and
- loss of wetlands due to filling or sedimentation.

Alterations to the wetland hydrology would most likely occur during the construction phase when working in adjacent areas causes surface water flows to be changed or modified. Many of the wetlands in the analysis area are palustrine emergent wetlands. These wetlands are situated just below the high water line; thus, any small modification to the existing drainage pattern could potentially re-direct surface water flows away from these areas that depend on temporary flood waters to saturate the soils and create wetland conditions.

Alterations to the wetland plant community are also most likely to occur during the transmission line construction phase. A change in the composition of the wetland plant community may be associated with and result from an alteration to the wetland hydrology, or this impact may be unrelated. A wetland plant community may be physically altered by mechanical disturbance during the construction activities, or the vegetation could be only temporarily trampled from parking or driving across these areas.

No direct filling or covering of wetland areas is intended as a result of implementing any of the action alternatives. However, construction activities adjacent to wetlands may inadvertently result in a disturbance with sediment transport and deposition into wetlands as the result of exposed soils and concentrated runoff down vehicle tracks and roads. MATL would implement erosion and sediment control practices as required by the State of Montana (**Appendix F**). MATL would also reduce or avoid impacts to wetlands by implementing mitigation, avoidance, or other environmental protection measures (**Table 2.3-4**).

The areas of individual wetlands were determined based on the shape and size of the polygons in the existing NWI maps. MATL would avoid individual wetlands by working with the engineering designs to span across or align around all wetlands within the 500-foot-wide alignment (MATL 2006b). In addition, the Benton Lake NWR wetlands would not be directly affected by the action alternatives. Potential indirect impacts to the Benton Lake NWR wetlands would be associated with a potential reduction of habitat (Section 3.8).

In order to assess potential impacts of the MATL transmission line project to wetlands, typical construction and operational practices used in the utility industry were reviewed. Potential impacts were evaluated in association with the need to construct access roads and in relationship with the methods used and engineering constraints involved with spanning over and constructing around wetlands crossings. MATL may not require any Section 404 and 401 permits, if it avoids discharging sediment or fill materials into wetlands or Waters of the U.S. The wetland impact assessment assumes MATL would comply with all requisite permitting requirements.

Alternatives were evaluated to determine the potential number of wetlands, size of wetlands, and general location of wetland crossings. All of the alternatives considered would cross some wetlands and the Teton and Marias rivers. Surface water resources are described in Section 3.5.2.

3.6.3.1 Alternative 1 – No Action

The No Action alternative would produce no adverse impacts to wetland resources. However, negligible to minor, long-term adverse impacts would continue from existing land uses. Runoff and erosion, primarily from agricultural lands, would continue to carry sediments and possibly nutrients and other pollutants to wetlands and surface water resources causing potential impacts. Sedimentation is a major contributor to the impairment of streams and rivers and reduction of functions for wetlands in Montana and the U.S.

3.6.3.2 Alternative 2 – Proposed Project

Wetland types and amounts potentially impacted by Alternative 2 are provided in **Table 3.6-3**.

TABLE 3.6-3
WETLANDS POTENTIALLY AFFECTED BY ALTERNATIVE 2

NWI Wetland Class	Acres within 500-foot alignment
Palustrine Emergent (PEM)	63.2
Palustrine Unconsolidated Shore/Bottom/Aquatic Bed (PUS, PUB, & PAB)	5.3
Lacustrine (L2)	0.8
Riverine/Floodplain	2.6
Total	71.9

In total, about 71.9 acres of wetlands have been mapped within the 500-foot-wide Alternative 2 alignment. The largest wetland crossing within the Alternative 2 500-foot alignment would be approximately 510 feet. All but one wetland could be spanned assuming a typical span length of 800 feet. However, one angle structure would be located within Black Horse Lake.

Most of the potentially impacted wetlands (approximately 88 percent) were palustrine emergent wetlands with only about 2.6 acres of riverine wetlands impacted at the Teton River, Dry Fork Marias River, and Marias River crossings. The 2.6 acres of riverine wetlands include areas that would be delineated as flood hazard areas (Zone A) on the FIRMs produced by FEMA. Approximately 75 percent of the potentially impacted wetlands are located in the area north of Cut Bank (Milk River Pothole area) and an area east and south of Conrad (Teton River area). The potential impacts to these wetlands would be alterations to the hydrology, alterations to the plant communities, and some minor filling from local sediment. The greatest potential impact to wetlands would be during construction.

The Alternative 2 alignment does cross approximately 0.8 acre of a delineated seasonally flooded lacustrine area near milepost 5 by Black Horse Lake. MATL would install bird warning devices on the transmission line, across all wetlands and streams including an additional ½ mile on either side. MATL has stated that it would conduct a soil investigation of this area and use either self-supporting steel poles with concrete caisson foundations or 3-pole wood structures with poles installed inside pipe piles. Guy wire screw anchors would be installed to an adequate holding capacity depth for this specific location (Williams 2007). The remaining wetlands are scattered along the alignment, including near the Benton Lake NWR area. Overall with successful implementation of the MATL proposed environmental protection measures (**Table 2.3-4**) and the required DEQ environmental specifications (**Appendix F**), impacts to wetlands under Alternative 2 would be minor and primarily of short duration.

3.6.3.3 Alternative 3 – MATL B

Alternative 3 is 8.3 miles shorter than Alternative 2 (121.6 miles vs. 129.9 miles) due to more diagonal segments along the entire alignment. The wetland types impacted by this alternative are of a similar class as those under Alternative 2, but there would potentially be 6.8 more acres impacted under Alternative 3 (**Table 3.6-4**).

TABLE 3.6-4
WETLANDS POTENTIALLY AFFECTED BY ALTERNATIVE 3

NWI Wetland Class	Acres within 500-foot alignment
Palustrine Emergent (PEM)	62.2
Palustrine Unconsolidated Shore/Bottom/Aquatic Bed (PUS, PUB, & PAB)	11.6
Lacustrine (L2)	0.8
Riverine/Floodplain	3.5
Total	78.1

A total of about 78.1 acres of wetlands within the 500-foot-wide alignment has been mapped along the Alternative 3 alignment, compared to 71.9 acres along the Alternative 2 alignment. All but one wetland could be spanned assuming a typical span length of 800 feet. However, one angle structure would be located within Black Horse Lake.

Most of the impacted wetland acres (73.8 acres or 94 percent) are palustrine emergent or palustrine unconsolidated wetlands. Approximately 3.5 acres of riverine wetlands (which generally corresponds to the flood hazard areas shown on FIRMs) would be impacted at the Teton, Dry Fork of the Marias, and the Marias river crossings. This Alternative 3 alignment is similar to Alternative 2 with approximately 75 percent of the potentially impacted wetlands located north of Cut Bank (Milk River Pothole area) and east and south of Conrad (Teton River area). The Alternative 3 alignment would also cross approximately 0.8 acre of the seasonally flooded lacustrine area near milepost 5 by Black Horse Lake. MATL would enact the same procedures for any structures placed in this area, as described for Alternative 2 above. The remaining wetlands are scattered along the alignment, including near the Benton Lake NWR area.

3.6.3.4 Alternative 4 – Agency Alternative

Alternative 4 is 139.6 miles in length, which is about 9.7 miles longer than the proposed Project (139.6 miles compared to 129.9 miles). This alternative is composed of 60.9 miles of the Alternative 2 alignment and 78.7 miles of agency-developed alignments that branch off the Alternative 2 alignment. The 78.7 miles of agency alignments were developed to address identified local scoping issues and concerns, but were not specifically developed to mitigate any potential impacts to wetland resources. The wetland types impacted by this alternative are similar to those under the Alternative 2

and Alternative 3. The wetland types impacted under this alternative are shown in **Table 3.6-5**.

TABLE 3.6-5
WETLANDS POTENTIALLY AFFECTED BY ALTERNATIVE 4

NWI Wetland Class	Acres within 500-foot alignment
Palustrine Emergent (PEM)	70.7
Palustrine Unconsolidated Shore/Bottom/Aquatic Bed (PUS, PUB, & PAB)	4.3
Lacustrine (L2)	0.0
Riverine/Floodplain	2.4
Total	77.4

In total approximately 77.4 acres of wetlands have been mapped within the 500-foot-wide Alternative 4 alignment, compared to 71.9 acres along the Alternative 2 alignment. All single large wetlands or groups of wetlands could be spanned by the typical 800-foot ruling span length.

Alternative 4 traverses around the southern and western sides of Benton Lake NWR area and would potentially impact fewer acres of wetlands from Great Falls to milepost 27.3, compared to Alternative 2, for this area. Several smaller palustrine and lacustrine wetlands, directly north of Great Falls (Black Horse Lake area) and along the western side of Benton Lake NWR, would be avoided by the Alternative 4 alignment.

The Alternative 4 alignment would cross Lake Creek, Teton River, Dry Fork Marias River, Marias River, and several major coulees (South Pondera, Pondera, Favot, and Big Flat). The Alternative 4 alignment east of Conrad crosses slightly larger and more defined drainages than would Alternatives 2 and 3. Drainages generally flow west to east in this area and tend to have more defined channels as they flow toward the Missouri River.

Most of the potentially impacted wetland acres (75 acres or 97 percent) are palustrine emergent or palustrine unconsolidated wetlands with only about 2.4 acres of riverine wetlands impacted at the Teton, Dry Fork of the Marias, and Marias river crossings. Alternative 4 would avoid the small seasonally flooded lacustrine area at Black Horse Lake. Overall, with successful implementation of the MATL proposed environmental protection measures (**Table 2.3-4**) and the required DEQ environmental specifications (**Appendix F**), impacts to wetlands under Alternative 4 would be minor and primarily of short duration.

3.6.4 Environmental Impacts to Floodplains

This section describes the types of impacts that could occur and effects of these impacts on floodplains specifically. **Table 2.3-4** lists mitigation measures and best management practices that would be implemented to reduce potential impacts to wetlands, floodplains, and surface water resources. As stated above, MATL has committed to avoid all impacts to floodplains and would meet this goal by avoiding placement of any structure (or related construction impact) within a regulatory floodplain or below the ordinary high water mark (MATL 2006b).

Impacts to floodplains from all three action alternatives (Alternatives 2, 3, and 4) would be similar in nature and extent because all alternatives would cross delineated floodplains at the Teton, Dry Fork Marias, and Marias river crossings. The total acres of floodplains within the 500-foot-wide right-of-way have not been quantified because not all flood-prone areas within the Project study area have been delineated. However, the amount of riverine wetlands (comparable to floodplains by landscape position) within the Project study area is available from NWI maps for all of the Project study area. The amount of riverine wetlands generally corresponds with the amount of flood hazard areas shown on the FIRMs. The acres of riverine wetlands that would potentially be impacted by the MATL transmission line range from 2.4 acres for Alternatives 4, to 2.6 acres for Alternative 2, and 3.5 acres for Alternative 3. One angle structure would be located within the delineated area of Black Horse Lake (a lacustrine wetland) under Alternative 2 and 3, but not under Alternative 4.

Numerous small drainages in the project area would be bisected because they are situated generally west to east and the transmission line alignment would run primarily north and south. The typical ruling span of 800 feet, and the ability to span up to 1,600 feet, makes it feasible to cross most drainages and associated flood-prone areas in one span, without creating adverse impacts to any associated floodplains. The defined river channels and delineated flood hazard areas shown on the FIRMs for the Teton and Marias rivers would be crossed with a single span.

In June 1964, the Teton River near Dutton, MT, recorded a peak discharge of 71,300 cubic feet per second (cfs) that exceeded an estimated 500-year flood event of 50,000 cfs at this location. One transmission line structure would be sited on a north-side terrace of the Teton River that may have been flooded by the June 1964 event but is outside the 100-year floodplain (USGS 2007).

MATL has committed to avoid locating any structures within the regulatory 100-year floodplains or below the high-water marks of any major rivers (MATL 2006b). No major adverse impact on floodplains is expected. No direct filling or modification to the surface elevation is expected within the Teton, Dry Fork Marias, or Marias river floodplains. Any transmission line structures located on lower stream terraces along

the Teton and Marias rivers would be outside and above the 100-year floodplain boundary.

Surface disturbance within the Teton River and Marias River bottomlands would be restricted to access roads to the structure sites. Earthmoving would be minimal. Construction could result in erosion and sedimentation to surface water, especially if flooding occurred during construction. Construction would not occur in flowing or standing water. Floodplain storage volumes would not be affected and flood stages would not increase measurably due to the presence of a structure on a lower river terrace. Little or no riparian vegetation would be disturbed during construction or operation of the transmission line. No adverse impacts from altered flooding patterns are expected to adjacent or downstream property owners. Impacts resulting from a structure placed on a lower Teton or Marias river terrace would be negligible. Impacts to floodplains would be further minimized by locating any needed access roads on naturally elevated areas.

No impacts to floodplains would be expected from the No Action alternative. Overall, with successful implementation of the MATL proposed environmental protection measures (**Table 2.3-4**) and the required DEQ environmental specifications (**Appendix F**), impacts to floodplains under the No Action and three action alternatives would be negligible and could occur only during construction.

Potential Mitigation and Best Management Practices

Mitigation measures have been developed by MATL to help avoid and minimize impacts to wetlands and floodplains from the proposed Project and alternatives. MATL's mitigation measures are not necessarily exclusive for wetland and stream crossings and may provide concurrent benefits for impacts to soils and other biological resources. MATL's stated measures to mitigate potential impacts to wetlands and floodplains include:

1) Avoiding existing wetlands, floodplains, and drainage channels to the maximum extent possible by completely spanning all wetlands, prairie pothole wetlands, riparian vegetation, coulees, Marias River, and Teton River.
2) Avoiding placement of transmission line structures in riparian vegetation areas.
3) Implementing erosion and sediment control best management practices during construction, as required by the State of Montana.
4) Completing timely seeding of all areas affected by project activities with native and/or non-invasive seed mixes to prevent soil erosion.

Agency-developed mitigation measures applicable to wetlands and floodplains would be attached to DEQ's Environmental Specifications (**Appendix F**). One agency mitigation measure for wetlands would be for MATL to delineate all wetlands, waters of the U.S., and floodplains along any selected alignment that traverses Teton County where no official NWI or updated FIRM data exists. To help avoid locating a structure in a floodplain, the southern side of the Marias River floodplain in Pondera County should be identified (temporarily delineated) to verify that the proposed structure location is outside the floodplain. Delineating the wetlands, floodplains, and other potential jurisdictional areas would assist in minimizing potential alterations to the hydrology and plant communities during construction and allow placement of mitigation measures at the appropriate locations. Additional mitigation measures specific to wetlands and Waters of the U.S. may be required by the U.S. Army Corps of Engineers under a Nationwide #12 Permit (Utilities Line Activities), if any construction, maintenance, or repair of utility lines and associated facilities is required within a jurisdictional wetland and Waters of the U.S. The additional wetland mitigation measures would help ensure no net loss of wetland acreage and a consistent approach for mitigating potential impacts to wetlands associated with the MATL transmission line project.

3.6.5 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.7 Vegetation

3.7.1 Analysis Methods

Analysis Area

Quantitative analysis of acres for various vegetation communities in each alignment was derived from orthophotograph interpretation of cover types along the proposed alternatives. Assumptions associated with GIS derived acreages of vegetation resources include:

- GIS data are based on 2005 orthophotographs (USDA NAIP 2005) that were hand digitized in 2006. Some misidentification may have occurred due to orthophotograph resolution and changes in vegetation type and condition since the photographs were taken.
- The analysis area consists of 250 feet on either side of each alignment centerline.
- Except as noted, all newly constructed access roads would be located within the 500-foot alignments.

All common and scientific plant names are based on the USDA PLANTS Database (NRCS 2006b).

Information Sources

Vegetation community types and noxious weeds are discussed in this section. Threatened, endangered, candidate, and sensitive species including special status plant species are discussed in Section 3.10. Community type and distribution data are based on field evaluations conducted in 2005 by MATL. Additional data sources include the NHP (2006b) and the Montana NRIS. Montana Gap Analysis Program (GAP) (Redmond and others 1998) data were reviewed and determined to be inappropriate for vegetation classification at this scale and inaccurate due to land cover changes since publication of the data set.

3.7.2 Affected Environment

This section addresses the environmental baseline conditions for vegetation resources in the Project area. The large spatial extent of the Project area encompasses many different vegetation types and communities. Vegetation communities in Montana are generally determined by topography, soil type, and climate (NHP 2002). In general, dominant vegetative communities include irrigated and non-irrigated farmland, fallow crops, CRP areas, native shrub and grassland communities, and riparian and wetland communities.

Three Level IV Ecoregions, described by Woods and others (2002), are found within the Northwestern Glaciated Plains Ecoregion: North Central Brown Glaciated Plains, Foothill Grasslands, and Milk River Pothole Uplands. Ecoregions are areas with general similarity in the type, quality, and quantity of environmental resources and are relevant to integrated ecosystem management (Woods and others 2002). The Northwestern Glaciated Plains is characterized as the transition zone between the more level, moister Northern Glaciated Plains to the east and the dryer, irregular Northwestern Great Plains to the west and southwest. The Northwestern Glaciated Plains is well suited for agriculture with much of the area having been converted to farmland. **Table 3.7-1** presents the environmental attributes of the three Level IV Ecoregions found in the Project area.

TABLE 3.7-1
PROJECT AREA LEVEL IV ECOREGIONS

Level IV Ecoregion	Elevation (feet)	Precipitation Mean Annual (inches)	Potential Natural Vegetation
North Central Brown Glaciated Plains	2,500 to 4,200	11 to 15	Grama- needlegrass-wheatgrass
Foothill Grasslands	3,500 to 5,500	11 to 22	Wheatgrass-fescue
Milk River Pothole Uplands	3,700 to 4,350	11 to 14	Grama- needlegrass-wheatgrass

Notes:
Sources: Woods and others (2002) and Kuchler (1964).

Potential natural vegetation for the Project area is dominated by the grama-needlegrass-wheatgrass and wheatgrass-fescue community types (Woods and others 2002). Mixed grass prairie in these areas is typified by open (40 to 60 percent canopy cover) graminoid dominated vegetation. Dominant native graminoids throughout the Project area include bluebunch wheatgrass (*Pseudoroegneria spicata*) and blue grama (*Bouteloua gracilis*) (**Table 3.7-2**). Bluebunch wheatgrass often shares dominance with needle-and-thread (*Hesperostipa comata*); blue grama is usually present in differing amounts depending on past grazing history. Western wheatgrass (*Pascopyrum smithii*) is also important in localized areas. Shrub cover is typically less than 10 percent in these communities with dominant species including broom snakeweed (*Gutierrezia sarothrae*), plains pricklypear (*Opuntia polyacantha*), and occasionally rubber rabbitbrush (*Ericameria nauseosa*)(NHP 2006a). Saline areas support alkali grass (*Puccinellia* spp.), wild barley (*Hordeum* spp.), greasewood (*Sarcobatus vermiculatus*), saltwort (*Salicornia rubra*), and Pursh seepweed (*Suaeda calceoliformis*)(MATL 2006b).

TABLE 3.7-2
DOMINANT PLANT SPECIES COMBINATIONS IN THE PROJECT AREA

Common Name	Scientific Name	Location
Short- and Mid-grass Prairie		
Blue Grama	*Bouteloua gracilis*	Breaks above Marias and Teton rivers
Thickspike Wheatgrass	*Elymus lanceolatus*	North of Cut Bank, some CRP
Needle-and-thread	*Hesperostipa comata*	Breaks above Marias and Teton rivers, coulees
Northern Porcupine Grass	*Hesperostipa curtiseta*	Breaks above Marias and Teton rivers
Green Needlegrass	*Nassella viridula*	Southern, below 230-kV switchyard
Western Wheatgrass	*Pascopyrum smithii*	Breaks above Marias and Teton rivers, coulees
Foxtail Barley	*Hordeum jubatum*	Saline soil patches
Badlands		
Silver Sagebrush	*Artemisia cana*	Kevin Rim, Dry Fork Marias River
Thickspike Wheatgrass	*Elymus lanceolatus*	North of Cut Bank
Creeping Juniper	*Juniperus horizontalis*	Trunk Butte, Kevin Rim
Shrublands		
Silver Sagebrush	*Artemisia cana*	Marias and Teton rivers; Kevin Rim
Blue Grama	*Bouteloua gracilis*	Missouri Plateau breaks/Rim north of Great Falls; Marias and Teton rivers
Needle-and-thread	*Hesperostipa comata*	Missouri Plateau breaks/Rim north of Great Falls; Marias and Teton rivers
Western Wheatgrass	*Pascopyrum smithii*	Breaks above Marias and Teton rivers, coulees
Silver Buffaloberry	*Shepherdia argentea*	Red River; coulees north of Cut Bank and central area
Riparian		
Boxelder	*Acer negundo*	Kevin Rim; coulees
Silver Sagebrush	*Artemisia cana*	Marias, Teton, Dry Fork Marias rivers
Sedge	*Carex spp.*	Marias and Teton rivers, coulees
Spikerush	*Eleocharis spp.*	Teton River, coulees
Western Wheatgrass	*Pascopyrum smithii*	Marias and Teton rivers, coulees
Plains Cottonwood	*Populus deltoides*	Marias and Teton rivers
Narrowleaf Cottonwood	*Populus angustifolia*	Marias and Teton rivers
Chokecherry	*Prunus virginiana*	Marias and Teton rivers, coulees
Wild Currant	*Ribes spp.*	Marias and Teton rivers, coulees
Woods' Rose	*Rosa woodsii*	Marias and Teton rivers, coulees
Peachleaf Willow	*Salix amygdaloides*	Dry Fork Marias River, coulees
Willow	*Salix spp.*	Rivers, coulees
Silver Buffaloberry	*Shepherdia argentea*	coulees
Western Snowberry	*Symphoricarpos occidentalis*	Rivers, draws, coulees

Notes:
Table is not intended to be a comprehensive list, rather a characterization of dominant species in the Project Area.
Source: MATL 2006b.

Shrublands are comparatively rare and occupy a very small portion of the Project area. These communities tend to be small and isolated and are generally located in badlands, upland draws, and terraces along riparian zones. The primary upland shrub community throughout the northern portion of the Project area is silver buffaloberry, which occurs as small, isolated patches in protected draws, drainage heads, and swale bottoms. Silver sagebrush occurs in relatively mesic sites and is generally found as stringers on the upper floodplain terraces of the larger creeks and rivers in the area, particularly the Dry Fork Marias River (MATL 2006b) (**Table 3.7-2**).

Historically, drought, fire, and periodic grazing were the dominant disturbance factors in this area (USDA Forest Service 1994). Conversion of native grasslands to agricultural uses has yielded highly fragmented native communities and altered historic disturbances. Other disturbances such as livestock grazing and rangeland managed under the CRP have produced native communities in a variety of ecological and successional conditions, in turn providing opportunity for the introduction of noxious weed species. CRP rangelands are dominated by introduced wheatgrasses (*Agropyron* spp.), alfalfa (*Medicago* spp.), clover (*Trifolium pratense*), and annual weeds, for example, yellow salsify (*Tragopogon dubius*)(MATL 2006b).

3.7.2.1 Riparian Vegetation

Riparian vegetation plays an important role in many physical processes within riparian areas. Riparian vegetation dissipates energy and filters and retains sediment during peak flow periods. The vegetation also immobilizes, stores, and transforms chemical inputs such as nitrogen. Riparian communities also stabilize streambanks and moderate instream conditions, such as temperature, to provide valuable fish and wildlife habitat (Schultz and others 1994). Data characterizing riparian vegetation in the Project area rely predominately on MATL field investigations and were taken from the MATL MFSA application (MATL 2006b), unless otherwise noted.

Riparian communities within the Project area are generally restricted to the Marias River, Teton River, coulees, and small ephemeral tributaries of the Marias and Teton rivers. The character of these riparian zones is directly related to soil moisture as determined by drainage basin size and dimensions, the annual flooding regime, and the proximity to the head of the drainage. These drainages experience large seasonal and annual hydrologic variability, resulting in relatively undeveloped floodplains in most of the Project area. Riparian habitats are better developed and more complex along the Marias River and Teton River. The coulees and smaller streams are relatively xeric and do not support substantial riparian vegetation. Generally, riparian zones within the Project area consist of herbaceous (*Carex* spp.) and willow communities in the wettest zones, which transition to western snowberry, Woods' rose, and silver sagebrush-western wheatgrass communities on the upper floodplain terraces. The Marias River and Teton River support narrow, discontinuous cottonwood stands interspersed by

broader terraces supporting silver sagebrush-western wheatgrass. Willow, cottonwood, and box-elder trees are found on shaded slopes of valleys and river terraces (**Table 3.7-2**).

The Marias and Teton rivers support the most important forested riparian habitats in the Project area including oxbow marshes and shrub-dominated terraces. The defining feature, however, is the cottonwood stands that line the rivers in places. Despite the fact that these riparian forests have been reduced and fragmented by conversion of the floodplain to irrigated agriculture and pasture (Jones 2003), they remain the only important native forested habitat within the Project area. The width of the cottonwood stands varies up to 500 feet.

In places, mature cottonwood trees dominate the Marias River and Teton River riparian communities. Mesic floodplains support a diverse understory that may include box elder, peachleaf willow, yellow willow, and chokecherry. Xeric floodplain terraces support a less diverse shrub layer dominated by western snowberry and Woods' rose, or lack a shrub component altogether. The native grasses that once characterized these stands have been largely replaced by exotic species like Kentucky bluegrass (*Poa pratensis*). Grazing has greatly altered the shrub composition in these communities (Jones 2003). Teton River terraces are subjected to less frequent seasonal flooding due to upstream reservoirs and when not farmed often support a silver sagebrush-western wheatgrass community. Lack of flood disturbance has changed the ecological dynamics by suppressing cottonwood regeneration and facilitating the colonization of invasive species such as Russian olive (*Elaeagnus angustifolia*).

Noxious Weeds

Invasive plants are often early successional, pioneer species that colonize quickly following disturbance. They typically produce large quantities of seed that germinate quickly and are highly competitive. Both native and non-native invasive plants are found throughout Montana. Noxious weeds are defined as "any exotic plant species established or that may be introduced in the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities" (7-22-2101, MCA). Noxious weeds are highly aggressive and lack native insects and diseases that aid in limiting the spread and distribution of the species. Some species can establish without soil disturbance and displace healthy native communities, resulting in noxious weed monocultures. Localized areas of spotted knapweed were found in the floodplain of the Marias River near Sullivan Bridge (Glacier County) and in the floodplain of the Teton River near Kerr Bridge (Teton County). Leafy spurge is also broadly distributed along the Marias River. Two additional noxious weeds, Canada thistle and field bindweed are located in the Project area. Canada thistle was found in the terraces above the Dry Fork Marias River (MATL 2006b). Montana Noxious Weed Survey and Mapping project data, hosted on NRIS,

indicate populations of Dalmatian toadflax near Conrad, Russian knapweed along the Marias and Teton river corridors, and leafy spurge scattered throughout the Project area (Montana Noxious Weed Survey and Mapping 1998). **Table 3.7-3** lists several other noxious weed species located within counties in the Project area. Although not listed as a noxious weed, cheatgrass (*Bromus tectorum*), an annual grass, is considered a weed by many agricultural producers in the area.

TABLE 3.7-3
CATEGORY ONE AND TWO NOXIOUS WEEDS FOUND IN COUNTIES WITHIN THE PROJECT AREA

Common Name	Scientific Name	Habitat
Category 1- Widespread Noxious Weeds		
Canada thistle	*Cirsium arvense*	Reported in all project area counties.
Common tansy	*Tanacetum vulgare*	Reported in Glacier, Cascade and Chouteau counties. Historically present in Toole and Pondera counties.
Dalmatian toadflax	*Linaria dalmatica*	Reported in all project area counties.
Diffuse knapweed	*Centaurea diffusa*	Reported in all project area counties.
Field bindweed	*Convolvulus arvensis*	Reported in all project area counties.
Houndstongue	*Cynoglossum officinale*	Reported in all project area counties.
Leafy spurge	*Euphorbia esula*	Reported in all project area counties.
Ox-eye daisy	*Chrysanthemum leucanthemum*	Reported in Glacier, Cascade and Chouteau counties. Historically present in Pondera and Teton counties.
Russian knapweed	*Acroptilon repens*	Reported in all project area counties.
Spotted knapweed	*Centaurea stoebe*	Reported in all project area counties.
St. Johnswort	*Hypericum perforatum*	Reported in Glacier, Cascade and Chouteau counties. Historically present in Teton County.
Sulfur cinquefoil	*Potentilla recta*	Reported in Glacier, Pondera, Cascade and Chouteau counties. Historically present in Toole County.
Whitetop or hoary cress	*Cardaria draba*	Reported in all project area counties except Glacier County (historically present).
Yellow toadflax	*Linaria vulgaris*	Reported in all project area counties.
Category 2- Established Invaders		
Dyers woad	*Isatis tinctoria*	Historically present in Pondera and Chouteau counties, but not currently reported.
Meadow hawkweed complex	*Hieracium pratense, H. floribundum, H. piloselloides*	Historically present in Pondera and Chouteau counties.
Perennial pepperweed	*Lepidium latifolium*	Reported in Toole, Pondera, Teton, Cascade and Chouteau counties.
Purple loosestrife or Lythrum	*Lythrum salicaria, L. virgatum*	Reported in Pondera and Cascade counties. Historically present in Toole County.
Tall buttercup	*Ranunculus acris*	Reported in Glacier county. Historically present in Teton County.
Tamarisk	*Tamarix* spp.	Reported in Cascade and Chouteau counties. Historically present in Teton County.

Source: MATL 2006b

3.7.3 Environmental Impacts

3.7.3.1 Alternative 1 - No Action

Alternative 1 would not have any effects on vegetation resources (riparian vegetation, species of concern, or weed control) in the analysis area.

3.7.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Rangeland vegetation, such as grassland, improved pasture, seeded grasslands, shrubland, badland, and riparian and wetland areas, would be removed by the construction of access roads and structures and at construction staging areas. Impacts to riparian and wetland areas would be minimal as these areas would only be disturbed when absolutely necessary. Maintenance activities would not often result in additional ground disturbance. Alternative 4 impacts the greatest amount of rangeland cover types (47.4 miles) and is 9.6 miles longer than Alternative 2. The increased crossing in rangeland/pasture land cover types would result in more tower structures and access roads, thus increasing rangeland/pasture land impacts. Disturbance due to maintenance activities would also increase over the life of the Project due to increased structure and road placement in rangeland vegetation. Linear miles of rangeland cover types affected by alternative are in **Table 3.7-4**. Disturbance resulting from staging areas would be similar for all alternatives. Off right-of-way access roads would be necessary on the approaches to the Teton and Marias River crossings. The anticipated off right-of-way access roads in these two areas would be on rangeland/pasture land.

TABLE 3.7-4
NATIVE VEGETATION COVER TYPES
CROSSED BY ALTERNATIVES 2, 3, AND 4

Rangeland Cover Types	Alternative 2		Alternative 3		Alternative 4	
	Miles	Cover Types (percent)	Miles	Cover Types (percent)	Miles	Cover Types (percent)
Grassland/ Shrubland	31.6	24.3	22.5	18.5	47.8	34.2
Riparian	1.4	1.1	1.7	1.4	1.9	1.4
Forest (Cottonwood)	0.0	0.0	0.1	0.1	0.1	0.1
Total	33.0	25.4	24.3	20.0	49.8	35.7
Total Line Length	129.9	--	121.6	--	139.6	--

Notes:
Source: Orthophotographs 2005 (Montana NRIS 2006a) interpretation of land cover in vegetation analysis area, October 2006.
-- Not applicable

Monopole structures would be used in cropland and CRP and would disturb approximately 28 square feet. H-frame structures would be placed in areas of native vegetation and would disturb approximately 44 square feet (**Table 2.3-1**).

Construction disturbance would include assembling structure disturbance, vehicle turn-around areas disturbance, and line pulling and tensioning area disturbance, construction road disturbance, and pole installation disturbance areas. Construction activities could result in accidental exposure to contaminants or fire. Accidental spills during equipment maintenance or refueling could result in temporary exposure to hazardous contaminants. Spill prevention plans would, however, be in place and impacted areas would be immediately reclaimed; so exposure would be temporary and restricted to the site of spill. Thus, impacts to vegetation would be restricted to those at the site of the spill. Accidental fires associated with construction and maintenance vehicles would result in the temporary loss of plants. These areas would be revegetated; thus, only the area occupied by structures would be impacted for the life of the Project.

Operational disturbance, the actual area occupied by the poles, would be approximately 8 square feet for H-frames. Operational disturbance would include H-frame structure base disturbance, other pole base disturbance, and access road disturbance. **Table 3.7-5** shows the estimated amount of operational disturbance associated with H-frame structures in native cover types by alternative. Although MATL proposes to avoid riparian disturbance wherever possible (MATL 2006b), structures may be placed in riparian habitat. Therefore, riparian land cover is included in the analysis of ground disturbance resulting from H-frame structures (**Table 3.7-5**). Cottonwood stands were not included in the analysis because these areas are scarce and could be avoided and not disturbed (**Table 3.7-4**).

TABLE 3.7-5
ESTIMATED OPERATIONAL DISTURBANCE FOR H-FRAME STRUCTURES BY NATIVE COVER TYPE

Rangeland Cover Types	Alternative 2		Alternative 3		Alternative 4	
	Percent Land Cover	Operational Disturbance (square feet)[a]	Percent Land Cover	Operational Disturbance (square feet)[a]	Percent Land Cover	Operational Disturbance (square feet)[a]
Grassland/ Shrubland	25.2	1,736	18.5	1,192	34.0	2,504
Riparian	1.1	73.9	1.5	95	1.4	100.3

Notes:

a Average 800-foot span between structures and assuming 8 square feet of operational disturbance per H-frame.

Access road construction and maintenance would impact native vegetation during line construction and project maintenance. Following construction, many of the road beds would be revegetated and treated to control noxious weeds resulting in resource recovery in 3 to 5 years. During vegetation recovery the likelihood of noxious weed invasion would increase. Implementation of the proposed weed control program would greatly reduce the establishment of weed species.

The major threat to vegetation resources from maintenance activities is the introduction of noxious weed species. Project maintenance would create minor vegetation disturbance throughout the life of the project. Vegetation would not be greatly affected by occasional trampling from maintenance vehicles; however, the resulting ground disturbance and physical plant damage provide an opportunity for weed invasion. Adherence to the proposed weed management plan would reduce the likelihood of weed establishment as a result of maintenance activities.

Estimates of total ground disturbance to range and pasture land from construction activities total approximately 83 acres under Alternative 2, 56 acres under Alternative 3, and 123 acres under Alternative 4. The total acreage of construction disturbance would be more than that for operational disturbance. Construction disturbance would be of varying intensity, with most areas, such as staging areas, requiring reseeding. All areas of disturbance would require noxious weed monitoring and possible weed treatment.

Estimates of total ground disturbance from operational activities include approximately 7 acres for Alternative 2, 11 acres for Alternative 3, and 15 acres for Alternative 4. Short- and long-term ground disturbance is greatest under Alternative 4.

Proposed practices to reduce potential vegetation loss and noxious weed invasion would include seeding disturbed areas with appropriate weed-free seed mixes, using weed-free borrow materials, and inventorying and treating noxious weeds according to the Noxious Weed and Invasive Plant Control Plan (MATL 2006b). The combination of the proposed revegetation and weed control measures along with vehicle cleaning and follow-up monitoring by DEQ would reduce the potential for native species displacement and noxious weed spread during project construction and long-term maintenance.

Riparian Vegetation

DEQ would apply its environmental specifications (**Appendix F**) to the project. The specifications include the requirement that MATL avoid placing poles or roads in designated 100-year floodplains. MATL has stated it would avoid riparian vegetation by completely spanning these areas to the maximum extent possible.

Weed Control

Ground disturbance and increased travel during line construction and maintenance could increase the risk of noxious weed spread. Weed infestations are actively controlled in cropland and along country roads and other rights-of-way; however, resources are often limited when treating weeds in native vegetation. The weed control area for this project is defined by MATL as:

> All lands disturbed by construction activities plus a 30-foot buffer area around disturbances. Newly constructed roadways, where needed, are expected to be about 14 feet wide with varying widths of cut and fill slopes. To buffer all disturbed areas it is estimated that the 'weed control area' would consist of an approximately 100-foot corridor along all roadways and tensioning sites that are used for construction, and all lands within 50 feet of each new transmission line structure. (MATL 2006b)

The proposed weed control program incorporates a baseline inventory and marking of existing noxious weed populations; preventative measures (that is, washing vehicles, flagging weed populations to be avoided, and seeding following disturbance); and an integrated control program involving spraying target species in coordination with the BLM, state weed coordinator, and county weed boards and groups. Mitigation practices such as washing vehicles and equipment would occur throughout construction and continue during future line maintenance activities. MATL would report annually to Federal, state, and county personnel on the condition and progress of this effort. The MATL integrated weed control plan would reduce the threat of noxious weed invasion following ground disturbance resulting from project construction and long-term maintenance. This weed control program would be implemented for the life of the project or as required by designated Federal, state, and county personnel to ensure long-term noxious/invasive plant control measures are met in the weed control area (MATL 2006b).

In addition to noxious weed invasion, unlisted weed species are likely to increase due to ground disturbance and increased traffic and activity in the study area. It is assumed MATL would treat these species in conjunction with noxious weeds. On farmland, it is assumed landowners would manage these species with the methods currently used.

3.7.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.8 Wildlife

3.8.1 Analysis Methods

This section discusses the occurrence and distribution of vertebrates (mammals, birds, reptiles, and amphibians) within the analysis area.

Analysis Area

The analysis area includes wildlife habitat potentially impacted by the implementation of the proposed Project. This area was defined as 1 mile on either side of the proposed and alternative transmission line alignments. Figures showing the alignments are in Chapter 2.

Information Sources

Information on the distribution of wildlife in the analysis area was obtained from a variety of sources, including: literature review, reports from the Natural Heritage Program (NHP) and FWP, technical reports, peer-reviewed journal articles, and field investigations conducted during May, June, and August 2005 and April and May 2006. Field investigations were conducted to evaluate biological resources in the vicinity of the proposed transmission line alignments. The potential for occurrence of wildlife species not observed during field investigations was assessed based upon evaluation of species distribution and habitat use and information from previous research studies and biological reports (MATL 2006b).

Threatened, endangered, candidate, and sensitive species found in the analysis area are discussed in **Section 3.10.**

3.8.2 Affected Environment

The analysis area encompasses the following Level IV ecoregions of Montana: the North Central Brown Glaciated Plains, the Foothill Grassland, and the Milk River Pothole Upland (Woods and others 2002). Human development and conversion to agricultural cropland have fragmented the native vegetation communities and reduced the quality of these areas as habitat for grassland species**.** Areas such as Benton Lake NWR, WPAs, CRP lands, river corridors, and the Kevin Rim are important wildlife habitats in the analysis area. The WPAs provide habitat for wildlife, especially waterfowl. CRP lands, which comprise approximately 17.7 percent of the area, also provide valuable cover and forage for various species of wildlife.

The Marias and Teton rivers represent the most important fisheries in the analysis area, and the associated cottonwood stands are the only sizeable woodlands in the area. The extent of a shrub-steppe community (silver sagebrush-western wheatgrass) is limited to the Kevin Rim in the northeast corner of the analysis area and lands southeast of Shelby north of the Marias River.

A list of wildlife species observed during field investigations is in **Table 3.8-1**. This table is not intended to be an exhaustive list of every species that occurs in the area, but rather to provide insight into current habitat conditions and general taxonomic groups that are found in the analysis area.

TABLE 3.8-1
SPECIES OBSERVED IN THE ANALYSIS AREA DURING FIELD INVESTIGATIONS

Common Name	Scientific Name	Location
Birds		
Golden eagle	*Aquila chrysaetos*	West of Benton Lake NWR
Northern harrier	*Circus cyaneus*	West of Benton Lake NWR
Swainson's hawk	*Buteo swainsoni*	West of Benton Lake NWR; Bullhead Road; Kevin Rim
Red-tailed hawk	*Buteo jamaicensis*	West of Benton Lake NWR; Bullhead Road; north of Teton River
Ring-necked pheasant	*Phasianus colchicus*	McLean State Game Preserve; Bullhead Road
Sharp-tailed grouse	*Tympanuchus phasianellus*	West of Benton Lake NWR; Marias River; north of Shelby
Horned lark	*Eremophila alpestris*	North of Marias River
Meadow lark	*Sturnella neglecta*	Throughout
Common snipe	*Gallinago gallinago*	McLean State Game Preserve
Long-billed curlew	*Numenius americanus*	Throughout
Northern shoveler	*Anas clypeata*	North of Cut Bank
Blue-winged teal	*Anas discors*	North of Cut Bank
Mallard	*Anas platyrhynchos*	North of Cut Bank
Gray (Hungarian) partridge	*Perdix perdix*	Kevin Rim; McLean State Game Preserve
Mammals		
Coyote	*Canis latrans*	South of Cut Bank
American pronghorn	*Antilocapra americana*	Throughout
White-tailed jackrabbit	*Lepus townsendii*	Kevin Rim
Red fox	*Vulpes vulpes*	Bullhead Road
Mountain cottontail	*Sylvilagus nutalli*	Kevin Rim
Mule deer	*Odocoileus hemionus*	North of Teton River

Notes:
Source: MATL 2006b

3.8.2.1 Mammals

Mammal species found in the grasslands are numerous and include mule deer, American pronghorn, badger (*Taxidea taxus*), Richardson's ground squirrel (*Spermophilus richardsonii)*, coyote, mountain cottontail (*Sylvilagus nutalli*), and white-tailed jackrabbit (*Lepus townsendii*), and a variety of small rodents. These species are relatively common in grassland and sagebrush steppe habitats in northcentral Montana.

Badgers occur at low densities in grasslands throughout the analysis area. Richardson's ground squirrel occurs in relatively low to moderate densities (Olson 2005a), including several active ground squirrel burrows in the Kevin Rim area (Zelenak 1996). Black-tailed prairie dogs (*Cynomys ludovicianus*) also occur in the analysis area east of Interstate 15 and are further discussed in **Section 3.10**. Riparian habitats along the Marias River and Teton River support additional mammal species, including raccoons (*Procyon lotor*), red fox, (*Vulpes vulpes*) and a variety of small rodents.

Ungulates

Mule deer (*Odocoileus hemionus*) occur in the analysis area south of the Marias River in low to moderate densities along coulees and draws and irrigated lands east of Conrad. **Figures 3.8-1**, **3.8-2**, and **3.8-3** illustrate the winter distribution of mule deer within or adjacent to the analysis area. Although the NHP Animal Field Guide indicates that white-tailed deer (*Odocoileus virginianus*) are generally restricted to the southern portion of the analysis area, not reaching as far north as the Marias River (NHP 2004), landowners along the Marias River reported observing white-tailed deer in this area. The NHP Animal Field Guide reports that within the southern portion of the analysis area, white-tailed deer stay close to riparian habitats along the Teton River and its tributaries. Data indicate that white-tailed deer do not have winter ranges within the analysis area; however, the species' range east of the continental divide varies greatly from year to year depending on climatic conditions (Montana NRIS 2005).

American pronghorn occur in low to moderate densities throughout the central and southern portions of the analysis area. Pronghorn were observed in grasslands, sagebrush steppe, and croplands during field investigations. NHP data indicate that pronghorn do not have a winter distribution within the analysis area (Montana NRIS 2005); however, pronghorn populations tend to fluctuate with environmental conditions. NHP and FWP data indicate that elk (*Cervus elaphus*) do not generally occur within the analysis area. The closest elk population is northeast of Shelby, outside the analysis area, in the Sweet Grass Hills.

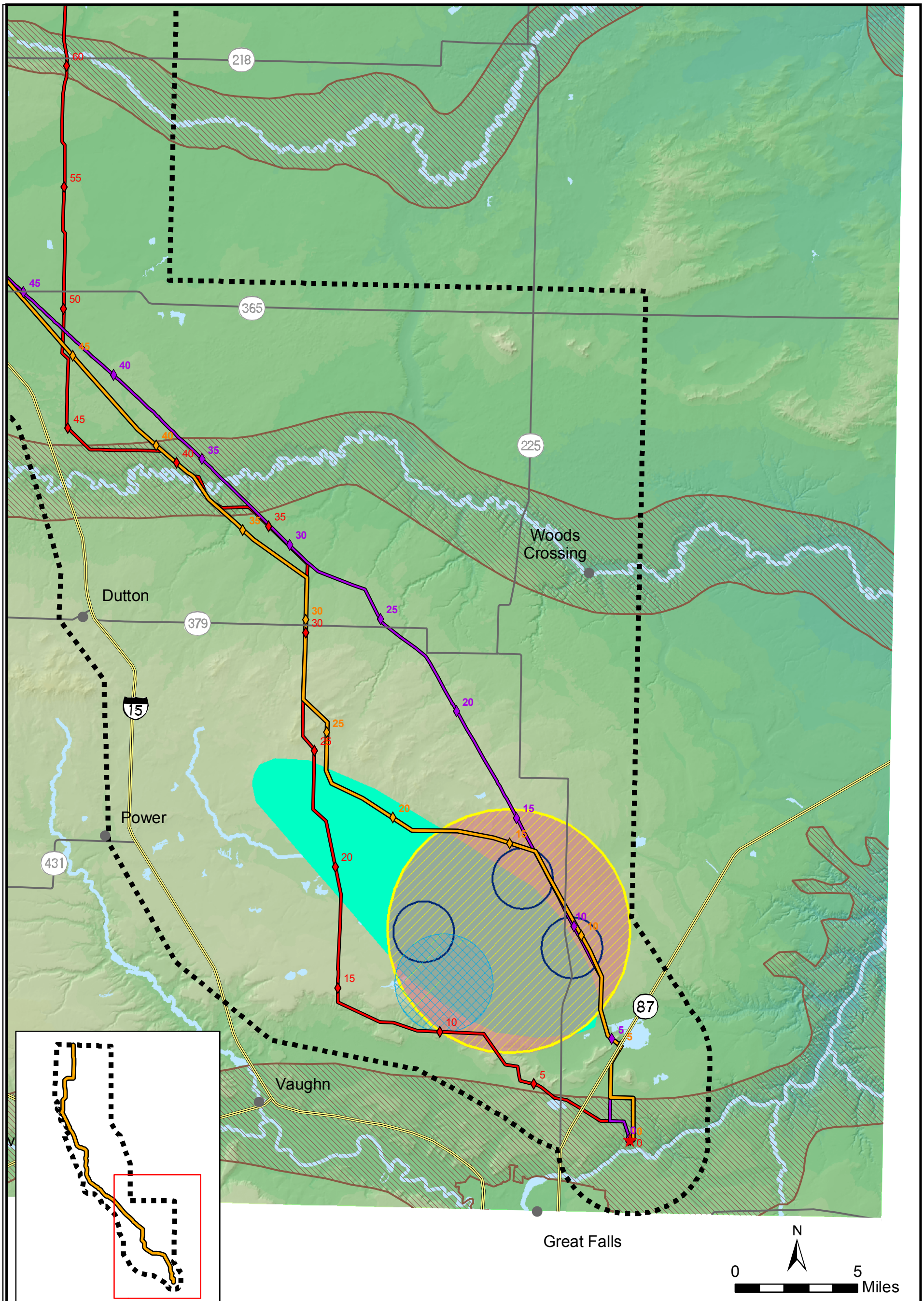


FIGURE 3.8-1
PROPOSED MATL POWERLINE
MULE DEER WINTER RANGE AND
SPECIES OF SPECIAL CONCERN
SOUTH

LEGEND

- MULE DEER WINTER RANGE (MTFWP)
- BLACK-CROWNED NIGHT-HERON (Nycticorax nycticorax)
- BLACK-NECKED STILT (Himantopus mexicanus)
- BURROWING OWL (Athene cunicularia)
- FERRUGINOUS HAWK (Buteo regalis)
- PEREGRINE FALCON (Falco peregrinus)
- SHARPTAIL GROUSE LEKS PROTECTION BUFFER AREA
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-8-1-MuleDeerWinterRng-TnESpp-South.mxd

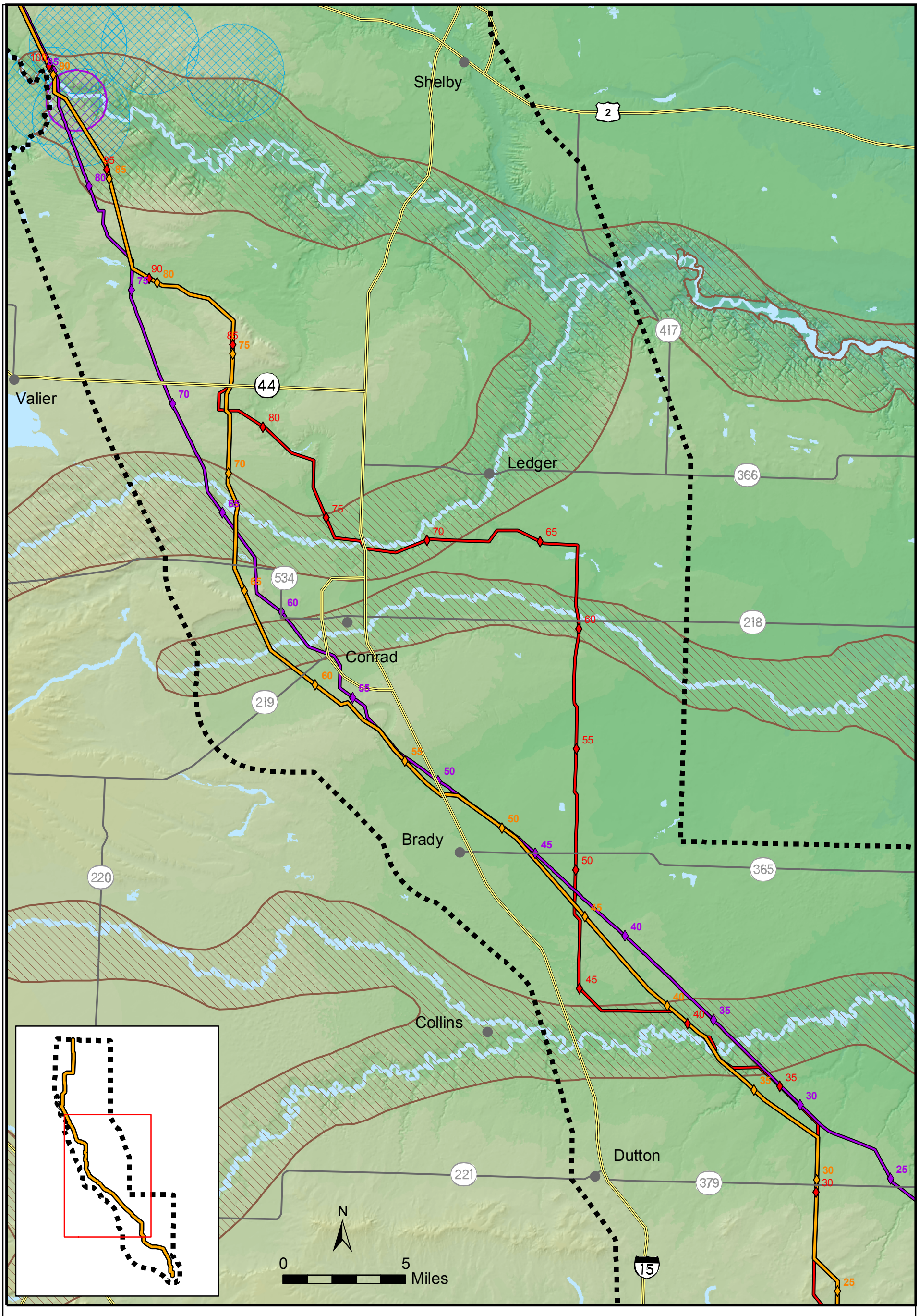


FIGURE 3.8-2
PROPOSED MATL POWERLINE
MULE DEER WINTER RANGE AND
SPECIES OF SPECIAL CONCERN
MIDDLE

LEGEND

- MULE DEER WINTER RANGE (MTFWP)
- BLACK-CROWNED NIGHT-HERON (Nycticorax nycticorax)
- BLACK-NECKED STILT (Himantopus mexicanus)
- BURROWING OWL (Athene cunicularia)
- FERRUGINOUS HAWK (Buteo regalis)
- PEREGRINE FALCON (Falco peregrinus)
- SHARPTAIL GROUSE LEKS PROTECTION BUFFER AREA
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-8-2-MuleDeerWinterRng-Middle.mxd

N

0 5 Miles

Sweetgrass

Sunburst

Kevin

Santa Rita

Cut Bank

Ethridge

Shelby

Valier

214

213

552

215

15

2

358

44

120 135 125 115 130 120 110 125 115 105 110 120 105 100 95 100 110 100 95 100 95 90 95 85 80 90 80 75 85 75 70 80

FIGURE 3.8-3
PROPOSED MATL POWERLINE
MULE DEER WINTER RANGE AND SPECIES OF SPECIAL CONCERN
NORTH

LEGEND

- MULE DEER WINTER RANGE (MTFWP)
- BLACK-CROWNED NIGHT-HERON (Nycticorax nycticorax)
- BLACK-NECKED STILT (Himantopus mexicanus)
- BURROWING OWL (Athene cunicularia)
- FERRUGINOUS HAWK (Buteo regalis)
- PEREGRINE FALCON (Falco peregrinus)
- SHARPTAIL GROUSE LEKS PROTECTION BUFFER AREA
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-8-3-MuleDeerWinterRng-North.mxd

Bats

The analysis area is within the known range of eight species of bats, representing one family and five genera (**Table 3.8-2**). All are insectivorous, preying upon nocturnal insects using highly evolved echolocation and foraging behavior. Bats use grasslands and riparian areas as foraging habitat. Some species are migratory, flying south for the winter (for example, the hoary bat and silver-haired bat), while others flock to local caves or mines for the lengthy winter hibernation (for example, *Myotis* spp. and the big brown bat). Migratory and wintering habits are poorly understood for many species. Townsend's big-eared bat is classified as a sensitive species by BLM and has a State rank of S2 (imperiled because of rarity and/or other factors making it vulnerable to extinction). The NHP did not have element occurrence data for this particular species of concern within the analysis area.

TABLE 3.8-2
BAT SPECIES LIKELY TO OCCUR IN THE ANALYSIS AREA[a]

Common Name	Scientific Name	Roosting Habitat[b]	Status[c]	Migration[d]
Silver-haired bat	*Lasionycteris noctivagans*	Tree cavities in mature coniferous/mixed forest	C	Migratory
Hoary bat	*Lasiurus cinereus*	Trees	C	Migratory
Big brown bat	*Eptesicus fuscus*	Tree cavities, buildings	C	Not known
Townsend's big-eared bat	*Corynorhinus townsendii*	Caves, abandoned mines	U	Year-round resident
Western small-footed myotis	*Myotis ciliolabrum*	Caves, abandoned mines, rock crevices	U	Not known
Long-eared myotis	*Myotis evotis*	Tree cavities and exfoliating bark in mature conifers	U	Not known
Little brown myotis	*Myotis lucifugus*	Buildings, trees, rock crevices	C	Probably migratory
Long-legged myotis	*Myotis volans*	Trees, buildings, rock crevices	U	Probably migratory

Notes:

Source: MATL 2006b

a Based upon NHP distribution data

b Primary hibernacula and roost habitats used by the species (Bat Conservation International 2002).

c General abundance/distribution in North America: C= common, U=uncommon (Bat Conservation International 2002).

d Current knowledge of migration status (Genter and Jurist 1995).

Due to local geologic and physiographic conditions, few if any caves or abandoned mines occur in the analysis area. Rock faces/crevices are found sparingly along parts of the Marias River and along the Kevin Rim. Accordingly, Townsend's big-eared bat and western small-footed myotis are unlikely to roost in much of the analysis area. Furthermore, the analysis area is at the distributional limits for these species, and

suitable roosting habitat does not exist in the area, thus the potential for occurrence of these species as residents is relatively low. In addition, the only known location of Townsend's big-eared bat north of the Missouri River in northeastern Montana is in the Little Rocky Mountains approximately 130 miles to the east (Hendricks 2000).

The cottonwood stands along the Marias River and Teton River represent potential roosting habitat for those species that roost in tree cavities and exfoliating bark. These species may occur in low densities given the limited availability of forested habitats within the analysis area. Habitat generalists, such as the big brown bat, little brown myotis, or the long-legged myotis, are likely to be the most abundant bat species in the area, given their capacity to use both natural and man-made structures for day and night roosts. No roosts or hibernacula are known to occur in the vicinity of the analysis area.

3.8.2.2 Birds

The vegetative communities provide habitat for a number of migratory and resident bird species within the analysis area. These species can generally be classified as upland game birds, grassland birds, waterfowl and shore birds, and raptors. The Marias River and Teton River cottonwood stands are the only large tracts of relatively contiguous forests in the analysis area and provide potential habitat for bird species that use forested and riparian habitats. The prairie grasslands along the river breaks and coulees provide potential habitat for a number of obligate grassland species. The WPAs, Benton Lake NWR, and various prairie potholes provide potential habitat for waterfowl and shore birds.

Upland Game Birds

Upland game bird species known to occur in the analysis area include: the ring-necked pheasant, the gray (Hungarian) partridge, and the sharp-tailed grouse. Ring-necked pheasant and gray partridge habitat consists of a mosaic of open grasslands, cropland, and brushy cover. Extensive tracts of prairie grassland do not provide good pheasant habitat (Mussehl and Howell 1971). Pheasants occur throughout the analysis area, but primarily near waterways.

Although the greater sage grouse (*Centrocercus urophasianus*) is classified as sensitive by the BLM and sharp-tailed grouse is considered uncommon by the State, they are currently considered game species by FWP and are subject to a legal harvest season. Generally, the greater sage grouse is a sagebrush obligate that relies on big sagebrush habitats in all seasons. Due to the low occurrence of big sagebrush habitat (Section 3.7.2), distribution data indicate that sage grouse do not occur within the analysis area. The closest distribution of sage grouse is near Tiber Reservoir along the Marias River, approximately 30 miles east of the study area.

Sharp-tailed grouse inhabit grasslands interspersed with woody draws and shrub coulees. The entire analysis area contains potential habitat for sharp-tailed grouse (NHP 2005). Except for areas close to the Marias River, Teton River, and Benton Lake NWR, the analysis area contains lower quality sharp-tailed grouse habitat due to habitat loss and fragmentation associated with agricultural activities. During field investigations seven sharptail leks (courtship display areas) were recorded. Three of the leks were observed visually and four leks were only identified by sound. Additional lek surveys were conducted by AMEC for MATL on April 30 (ground) and May 2 (aerial), 2008. Although some isolated sharp-tailed grouse were seen, no leks were observed. Observation of isolated grouse does not signify the presence of leks. Although FWP did not have specific locations of leks, it identified water crossings, draws, and coulees that are not cultivated as probable locations for leks, specifically Benton Lake NWR, Cut Bank Creek breaks (including where the Two Medicine River and Cut Bank Creek come together to form the Marias River), Teton River, east of Dutton along coulees and draws, Big Flat Coulee, the Dry Fork of the Marias River, and the Kevin Rim (Olson 2005a).

Grassland Birds

The intact mid- and shortgrass prairie communities along the Marias River, Teton River, and several draws and coulees within the analysis area have been subjected to light to moderate grazing intensities and represent relatively high quality wildlife habitat. Several obligate grassland species may occur in the aforementioned areas. FWP identified the following grassland birds as having the potential to occur:

- McCown's longspur (*Calcarius mccownii*);
- Mountain plover (*Charadrius montanus*);
- Sprague's pipit (*Anthus spragueii*);
- Chestnut collared longspur (*Calcarius ornatus*); and
- Baird's sparrow (*Ammodramus bairdii*).

None of these species was observed during field investigations. All five of these species are identified by the state as species of concern. Baird's sparrow was identified by the NHP as known to occur within the analysis area and is discussed further in **Section 3.10**. The quality and relative intactness of the grassland prairie habitats declines with distance away from the Marias and Teton rivers due to increasing agricultural land uses.

Waterfowl and Shore Birds

Several waterfowl species are known to occur in the analysis area, the majority of which have been observed on Benton Lake NWR (**Figure 3.6-1**). Breeding bird surveys on Benton Lake NWR have documented 20 species of ducks, including 12 species that nest on the refuge (FWS 2000). These species likely use areas adjacent to the refuge for foraging. Birds have been documented to migrate into the refuge from all directions and no specific migratory pathways or low-level flight feeding pathways have been identified (Johnson 2005). Waterfowl habitat within the analysis area includes lakes, wetlands, stock ponds, the Marias River, and the Teton River. Wetlands and stock ponds tend to be small and isolated. Since most stock ponds lack emergent and/or wetland vegetation, nesting habitat is limited. Surface waters that possess potential nesting habitat include Benton Lake, Hay Lake, Grassy Lake, WPAs, and a few of the larger, undisturbed prairie potholes. The Marias and Teton rivers also provide waterfowl habitat, although hydrologic changes and channel incision have reduced the availability of quality nesting habitat along both rivers. Riparian communities along ephemeral streams that bisect the analysis area do not provide quality waterfowl habitat. Wetlands, stock ponds, Hay Lake, Marias and Teton rivers, and Benton Lake NWR also provide stopover habitat for migrating waterfowl.

Approximately 32 species of shore birds are known to occur in the analysis area, primarily on Benton Lake NWR (**Table 3.8-3**). These species nest in native grassland prairie habitats in proximity to mesic grasslands or shallow wetlands. Habitat for these species occurs primarily in the northern and central portions of the analysis area where native prairie grasslands are interspersed with small ponds, wetlands, and riparian areas. Habitat for other shore bird species includes the wetlands and stock ponds that are dispersed throughout the analysis area. With the exception of Hay Lake, the small size and lack of emergent wetland vegetation in most of the water bodies reduce their quality as shore bird habitat. The Marias and Teton rivers and adjacent areas also represent potential shore bird habitat.

TABLE 3.8-3 WATERFOWL AND SHORE BIRDS SIGHTED ON BENTON LAKE NWR SINCE 1961	
Shore birds	**Swans, Geese, and Ducks**
Black-bellied Plover	Tundra Swan (Whistling Swan)
American Golden Plover (Lesser Gol-Pl.)	Trumpeter Swan
Semi-palmated Plover	Greater White-fronted Goose
Piping Plover	Snow Goose
Killdeer	Ross' Goose
Black-necked Stilt	Canada Goose
American Avocet	Wood Duck
Greater Yellowlegs	Green-winged Teal
Lesser Yellowlegs	American Black Duck
Solitary Sandpiper	Mallard
Willet	Northern Pintail
Spotted Sandpiper	Blue-winged Teal
Upland Sandpiper	Cinnamon Teal
Whimbrel	Northern Shoveler
Long-billed Curlew	Gadwall
Hudsonian Godwit	Eurasian Wigeon
Marbled Godwit	American Wigeon
Ruddy Turnstone	Canvasback
Red Knot	Redhead
Sanderling	Ring-necked Duck
Semipalmated Sandpiper	Greater Scaup
Western Sandpiper	Lesser Scaup
Least Sandpiper	Oldsquaw
Baird's Sandpiper	White-winged Scoter
Pectoral Sandpiper	Common Goldeneye
Dunlin	Barrow's Goldeneye
Stilt Sandpiper	Bufflehead
Short-billed Dowitcher	Hooded Merganser
Long-billed Dowitcher	Common Merganser
Common Snipe	Red-breasted Merganser
Wilson's Phalarope	Ruddy Duck
Red-necked Phalarope	

Note:

Source: MATL 2006b

Raptors

Raptor species are known to occur in the analysis area and have been observed during breeding bird surveys and field investigations conducted for this project. The Kevin Rim Area of Critical Environmental Concern and the Marias and Teton River breaks provide potential habitat for raptors. A list of raptors observed by other researchers along Kevin Rim from 1993-1994 is in **Table 3.8-4** (Zelenak 1996).

While these species are present in the analysis area during breeding season, potential nesting sites, aside from Kevin Rim and the bluffs around the Marias and Teton rivers, are limited to small shrubs in draws and coulees, riparian cottonwood trees, and ornamental spruce trees near farms or residential areas (Olson 2005a). A historic peregrine falcon eyrie is located where Cut Bank Creek and Two Medicine River flow together to form the Marias River. The eyrie is discussed further in **Section 3.10**. Intermittent cottonwood stands along the Marias and Teton rivers are used by bald eagles during the winter, and indirect evidence of breeding has been observed in these areas (NHP 2005). Bald eagles and peregrine falcons are often seen in the spring on Benton Lake NWR (FWS 2000).

TABLE 3.8-4
RAPTORS OBSERVED AT THE KEVIN RIM, 1993-1994[a]

Common Name	Scientific Name
Ferruginous hawk	*Buteo regalis*
Prairie falcon	*Falco mexicanus*
American kestrel	*Falco sparverius*
Red-tailed hawk	*Buteo jamaicensis*
Golden eagle	*Aquila chrysaetos*
Swainson's hawk	*Buteo swainsoni*
Great-horned owl	*Bubo virginianus*
Burrowing owl	*Athene cunicularia*
Northern harrier	*Circus cyaneus*
Short-eared owl	*Asio flammeus*

Notes:
Source: MATL 2006b
[a] Source: Zelenak 1996

Potential raptor prey sources include colonial rodents, lagomorphs (rabbits and hares), waterfowl, young grouse, and carrion. Although prey populations in the analysis area have not been assessed, prey densities are generally low (Olson 2005a). Ground squirrels comprised the majority of prey items recorded in ferruginous hawk nests in 1993 and 1994, followed by lagomorphs and birds (Zelenak 1996). A black-tailed prairie dog town is known to exist east of Interstate 15 southeast of Shelby north of the Marias River. Rabbits and hares are common, and, while these populations are subject to large

annual fluctuations, field investigations indicated that current lagomorph densities are relatively low. The five WPAs provide waterfowl concentration areas, which may serve as raptor prey sources. Carrion is available on ungulate winter ranges where bald eagles and other scavengers are attracted to the area by over-winter mortalities (Olson 2005a). Dead livestock may also provide carrion for scavenging raptors.

Migratory Birds

Figure 3.8-4 shows bird migration corridors through Montana. Exact migration routes vary from year to year depending on weather patterns and availability of habitat. The analysis area contains rolling hills, gentle ridges, and plateaus bisected by small drainages. There are no obvious "funnels," such as prominent ridgelines or mountain gaps that could potentially serve as a large scale or regional migratory pathway. The relatively small ridges within the analysis area may serve as local pathways for birds passing through as part of a large, broad front migration. Thousands of tundra swans, and snow and Ross' geese stop at the Benton Lake NWR for a week or more while migrating from their wintering grounds in central California to nesting areas in arctic Alaska and Canada. Twenty species of ducks, including 12 species that stay to nest on the refuge, also migrate into and through this area. Aside from Benton Lake NWR, a limited amount of stopover habitat for migrating waterfowl is available within the analysis area (Johnson 2005). Hay Lake and Aloe Lake also provide stopover habitat. Riparian habitats can also provide stopover habitat for neotropical migrants. Examples of neotropical migrant birds include species of plovers, terns, hawks, cranes, warblers, and sparrows.

3.8.2.3 Reptiles and Amphibians

Although fragmented by agricultural cropland, the upland, riparian, and aquatic communities within the analysis area may provide habitat for a variety of reptile and amphibian species. Field surveys were not conducted specifically for reptiles and amphibians; however, species distribution information suggests that 10 reptile and amphibian species are likely to occur in the analysis area (FWS 2000). **Table 3.8-5** is a list of reptiles and amphibians that are likely to occur based upon observations of habitat during field investigations, the Benton Lake NWR wildlife list, previous NHP field studies, and the NHP Animal Field Guide database. The greater short-horned lizard is classified as a sensitive species by BLM and has a State rank of S3 (vulnerable because of rarity, or found in restricted range even though it may be abundant at some locations). The NHP did not have occurrence data for this particular species of concern within the analysis area.

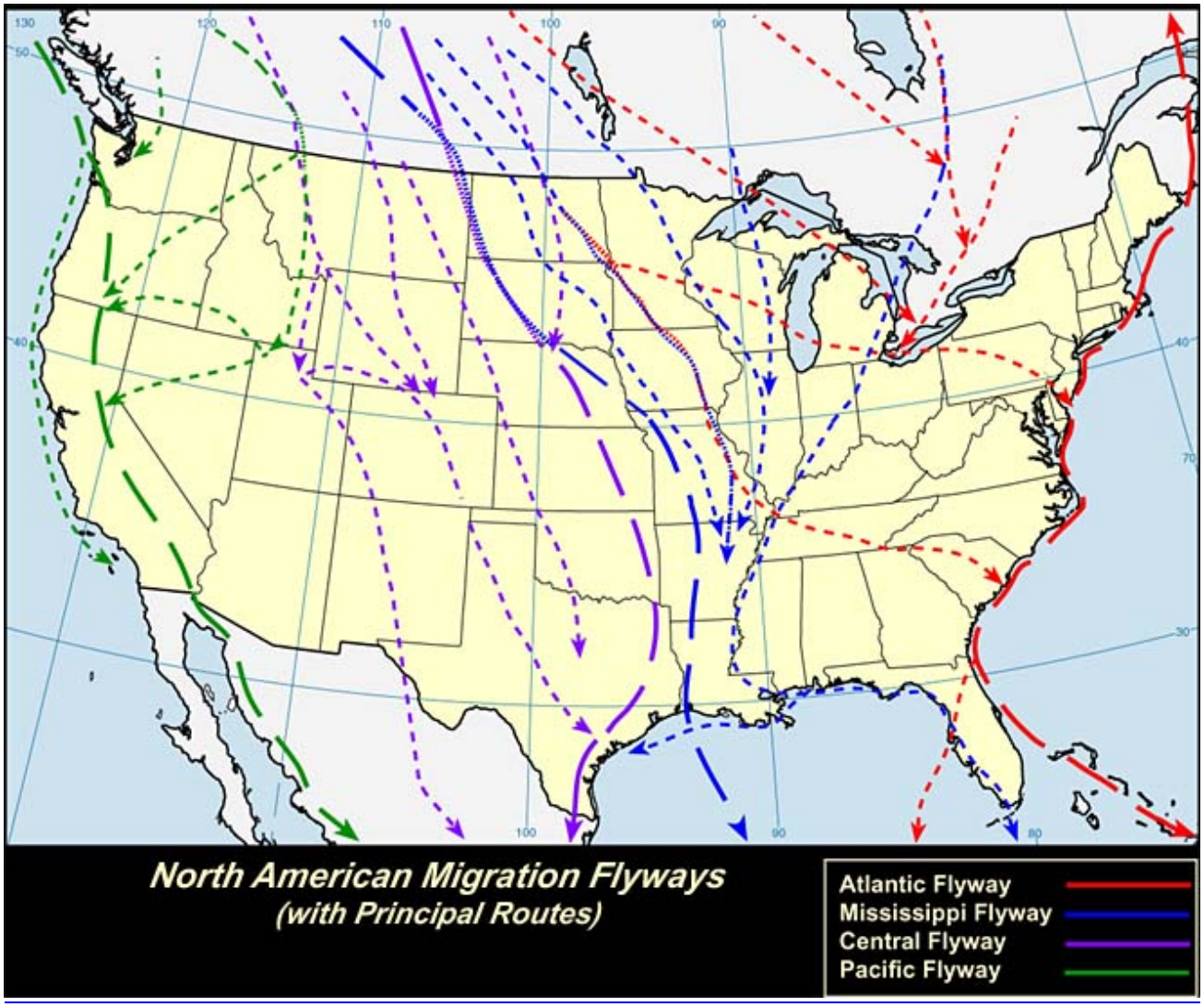


Figure 3.8-4
North American Migration Flyways

The species listed in **Table 3.8-5** occupy a broad range of habitat types, ranging from ponds to mesic grasslands to xeric uplands, and may occur in appropriate habitats throughout the analysis area. No known critical breeding habitats or hibernacula for any reptile or amphibian species occur within the analysis area.

TABLE 3.8-5
REPTILE AND AMPHIBIAN SPECIES LIKELY TO OCCUR IN THE ANALYSIS AREA[a]
MONTANA ALBERTA TIE LTD., LETHBRIDGE, AB – GREAT FALLS, MT

Common Name	Scientific Name	Habitat
Reptiles		
Short-horned lizard[b]	*Phrynosoma hernandesi*	Sparse, shortgrass and sagebrush habitats with exposed soils or rock
Racer	*Coluber constrictor*	Open habitats, particularly common in shortgrass prairie
Gopher snake	*Pituophis catenifer*	Arid sagebrush and grassland habitats
Western Rattlesnake	*Crotalus viridis*	Open, arid habitats with south-facing slopes and rock outcrops
Common Garter Snake	*Thamnophis sirtalis*	Numerous, prefer moist habitats along streams and ponds
Western Terrestrial Garter Snake	*Thamnophis elegans*	Nearly all habitats
Plains Garter Snake	*Thamnophis radix*	Numerous, including shortgrass prairie near water (ponds and coulees)
Amphibians		
Tiger Salamander	*Ambystoma tigrinum*	Breeds in ponds and streams; burrows in prairie or agricultural habitats
Western Chorus Frog	*Pseudacris triseriata triseriata*	Mesic grasslands and marshes near ponds and small lakes
Painted Turtle	*Chrysemys picta*	Lakes, ponds, reservoirs, and sloughs that contain some shallow water areas and a soft bottom; also river backwaters and oxbows with little current

Notes:
Source: MATL 2006b
[a] Source: NHP 2004.
[b] BLM: Sensitive; State rank: S3 - potentially at risk because of limited and/or declining numbers, range, and/or habitat, even though it may be abundant in some areas.

3.8.3 Environmental Impacts

For impacts of alternatives, the analysis focuses on assemblages of species that are of concern for reasons of public importance, sensitivity to disturbance, or regulatory issues. Potential impacts were determined mainly based upon the habitat type crossed and the known (that is, mule deer winter range) or potential (that is, sharp-tailed grouse leks) sensitive wildlife resources within that habitat type. Short-term direct impacts on wildlife resources would include loss of individuals during construction or direct disturbance of species during critical periods in their life cycles. Long-term direct impacts could include alteration and/or fragmentation of habitat and collisions. Indirect impacts could include fragmentation and disturbance caused by providing access to areas not previously accessible.

3.8.3.1 Alternative 1 – No Action

Under the No Action alternative, the proposed Project would not be implemented. Existing electrical transmission service would be maintained and operated at its current level. Selection of the No Action alternative would not result in any construction or operation of additional transmission lines within the analysis area; thus, no impacts to wildlife or their habitat would occur.

3.8.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Potential adverse impacts to wildlife associated with development of the transmission line can be separated into impacts associated with project construction (short term) and those related to operation and maintenance (long term). The primary potential impacts include direct mortality, habitat loss and fragmentation, disturbance and displacement of individual animals, interference with behavioral activities, and disturbance resulting from increased public access.

Short-term Impacts

Installation and development of the proposed transmission line and activities such as site clearing and grading, construction of access roads and support facilities, and off-road travel during construction could cause direct injury or mortality to wildlife. Species with higher likelihood to be impacted include species with limited mobility, species that burrow, or avian species, as nests and burrows could be destroyed during construction. Construction related disturbances would be short term (6 to 7 months) and confined to the construction site or adjacent storage areas.

Disturbance associated with the installation and development of the transmission line would result in some habitat loss and fragmentation. Construction activities such as site clearing, site grading, and development of access roads and support facilities would result in a temporary loss of approximately 72 to 80 acres of potential habitat in the analysis area, depending on the action alternative (MATL 2006b). While a portion of disturbed areas would be reclaimed upon completion of construction activities, permanent habitat loss would occur within the footprints of support structures, and access roads.

Construction activities would result in disturbance and behavioral interference. Noise, fugitive dust, and activities associated with site clearing and grading, installation of support structures, construction of access roads and support facilities, and associated equipment could disturb and displace wildlife within and adjacent to impact areas. All wildlife species within or near impact areas would be susceptible to disturbance. Disturbance would have the greatest impact during migration and breeding seasons. Some species with small home ranges or limited dispersal ability might experience a

greater impact. These disturbances would be short term (6 to 7 months) and concentrated within the activity area.

The construction activities could also result in accidental exposure to contaminants or fire or increased legal and illegal killing of wildlife. Accidental spills during equipment maintenance or refueling could result in temporary exposure to hazardous contaminants. Because spill prevention plans would be in place and impacted areas would be immediately reclaimed, and exposure would be temporary and restricted to the site of spill, impacts to wildlife would be unlikely. Accidental fires associated with construction and maintenance vehicles would result in the temporary loss of habitat. The increased public access as a result of increased access roads may result in additional legal hunting and poaching.

Long-term Impacts

Collisions

Direct impacts to avian species could occur as a result of collisions with the proposed transmission line. Operation of the proposed transmission line would have the greatest potential impact on bird species, due to the collision threat posed by structures, transmission lines, guy wires, and ground wires. Most other wildlife would not be as impacted, since the presence of the transmission line, structures, and access roads generally does not present a barrier to migration, create excessive noise, or otherwise cause major behavior changes.

A variety of factors influence avian transmission line collisions: configuration and location of transmission lines; specific avian species and their tendency to collide with transmission lines; and the environment, such as weather, topography, and habitat (Avian Power Line Interaction Committee [APLIC] and FWS 2005). Line placement with respect to other structures and topography can influence the collision rate. Collisions usually occur near water or migration corridors and more often during inclement weather. Less agile birds, such as heavy-bodied birds or birds within flocks, are more likely to collide with overhead lines as they lack the ability to quickly negotiate obstacles. Some bird species, usually waterfowl, are prone to collisions with power lines, especially the grounding wires located at the top of the structures (Meyer 1978, James and Haak 1979, Beaulaurier 1981, Beaulaurier et al. 1982, Faanes 1987) though collisions with guy wires also occur. Raptor species are less likely to collide with power lines, perhaps due to their excellent eyesight and tendency to not fly at dusk or in low visibility weather conditions (Olendorff et al. 1981). Smaller migratory birds are at risk, but generally not as prone to collision because of their small size, ability to quickly maneuver away from obstacles, and because they often migrate high enough above the ground to avoid transmission lines. Permanent-resident birds that fly in tight flocks, particularly those in and near wetland areas, may be at higher risk than other species.

The action alternatives would implement environmental protection measures that would reduce the potential for avian collisions. Areas with a higher likelihood for avian collisions, such as known flyways, were avoided. In addition, MATL would apply *Suggested Practices for Avian Protection on Power Lines*: *The State of the Art in 2006* developed by the EEI, APLIC and the California Energy Commission (2006), as appropriate, during design and construction of overhead structures and the substation additions. Avian collisions would be reduced because approved line marking devices would be installed, at intervals suggested by manufacturer's recommendations, on overhead ground wires within all stream, river and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, and Teton River. Line marking devices would also be placed within a ¼ mile buffer on either side of streams, rivers, or wetlands and within ½ mile of the Benton Lake NWR boundary. These marking devices have been reported to reduce mortality by approximately 40 to 90 percent. Annual mortality surveys would be conducted by MATL in these areas to ensure that the line marking devices are functioning properly. If the markers were found to be ineffective, alternative designs and configurations would be tried until mortality rates are reduced. In addition, to ensure that adverse effects would be avoided, MATL would complete and submit to the USFWS an Avian Protection Plan (APP) that would outline the elements of the MATL project that would reduce the avian risks and avian mortality.

Electrocutions

New transmission lines could potentially impact large birds, such as raptors, through electrocution. Electrocution occurs when birds with large wingspans come in contact with either two conductors or a conductor and a grounding device. Two factors influence the potential for avian electrocution: environmental factors such as topography, vegetation, available prey, and behavior; and inadequate separation between energized conductors and grounded hardware providing two points of contact (APLIC and FWS 2005). MATL transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution. MATL's line would entail "avian safe" structures, which provide adequate clearance to accommodate a large bird between energized and/or grounded parts. These structures typically have 60 inches of horizontal separation, which can accommodate the wrist-to-wrist distance of an eagle. In addition, vertical separation of at least 48 inches can accommodate the height of an eagle from its feet to the top of its head (APLIC and FWS 2005).

Increased Predation

Impacts could occur from increased raptor predation within the areas surrounding the support structures. In areas where suitable prey habitat is within view, perch sites can provide an energy efficient method for hunting. There is the concern that raptors may use the horizontal cross arms of H-frame transmission structures or single pole structures as perches while scouting for food. Concerns have been raised in some circumstances that the raptors could impact the prairie nesting bird populations due to

this. The proposed segments do not go through any major prairie bird nesting area, and the segments that have been identified to be within 2 miles of an identified lek would have perch guards installed on support structures in order to deter raptor perching. The 2-mile radius has been identified by FWP biologists (Northrup 2006) and peer reviewed management guidelines (Connelly et al. 2000) as an adequate buffer area to ensure that leks would be protected from an increase in raptor predation.

Impacts to Wildlife Species

All action alternatives would cross through similar habitat types with predominantly agricultural lands and scattered grasslands. Impacts to specific wildlife species are discussed below. Because only minor differences occur between the action alternatives, impacts are discussed together with differences addressed within the discussion.

Big Game Species

Impacts on big game species would not be expected. Pronghorn and mule deer does with fawns could be displaced by activities during late spring and early summer, but disturbance within a given portion of the line would be temporary, and animals could easily use adjacent habitat during disturbance periods. Activities would not disturb wintering animals as the construction activities would occur during the spring and summer months. In the event that activities would occur in the winter, animals could be disturbed and potentially displaced; however, disturbance in a specific area would be temporary. The proposed and alternative transmission line alignments would cross through mule deer winter range, and there would be some permanent loss of habitat as a result of structures and access roads (**Table 3.8-6).** Under Alternative 2, approximately 0.5 to 2 miles of the transmission line bisecting mule deer winter range may vary in its location depending on the local realignment option selected. This habitat loss would not impact mule deer as this is a minor loss relative to the amount of available habitat within the region.

TABLE 3.8-6
MULE DEER WINTER RANGE IMPACTED BY ALTERNATIVES

Mule Deer Winter Range	Alternative		
	2	3	4
Linear Miles of Mule Deer Winter Range Bisected by Transmission Line	19	20	28

Sharp-tailed Grouse
Potential sharp-tailed grouse habitat along alternative alignments is patchy due to fragmentation by agricultural land. The primary suitable habitat is in the grasslands above the Marias River where two leks were observed and two leks were identified by sound. In total, three leks are within the 2-mile buffer area of the alignments. Although no leks were observed above the Teton River during field investigations, the area where the action alternatives would cross the Teton is potential sharp-tailed grouse habitat.

Impacts on sharp-tailed grouse leks could result from disturbance during the breeding season in April and early May, and to nesting hens during May and early June. However, based on MATL's commitment to curtail construction in any sharp-tailed grouse nesting habitat during the nesting season and to use raptor perch deterrents as appropriate, few impacts to breeding sharp-tailed grouse would be expected from implementation of the alternatives. Based on consultation with the FWP (Northrup 2006) and the "Guidelines for management of sage grouse populations and habitats" (Connely at al. 2000), all support structures that would cross within the 2-mile buffer area around the documented leks would be fitted with raptor perch deterrents to reduce predation. For all action alternatives, this would result in approximately 73 support structures (11 miles of transmission line) to be fitted with raptor perch deterrents.

Raptors
Raptor nest surveys conducted along the action alternative alignments found no raptor nests within ½ mile of the alignments. Nesting habitat occurs in cottonwood groves found along the Marias and Teton rivers and in ornamental trees found near residences, generally greater than 1 mile away from the alignments (Olson 2005b). Impacts to raptors would not be expected; in the event that a raptor nest was identified during construction activities, MATL would consult with the FWP and take precautions to minimize impacts on nesting raptors**.**

Migratory Birds
Disturbance to migratory birds from noise, vehicles, and human presence during construction would be localized and of short duration. Bird nests could be destroyed if birds are nesting within the disturbed areas. However, many of the birds would re-nest if the first attempt were unsuccessful. No long-term impacts associated with operating and maintaining the line are expected.

Wetlands are an essential component of waterfowl nesting habitat, and nesting can occur up to a mile from wetlands (Ringelman 1992). Alternative alignments would not come within 1 mile of any of the five WPAs or any known nesting colonies in the Project study area. Peterson WPA, located in Glacier County northwest of Hay Lake, is approximately 1.7 miles from the Alternative 2 alignment and 1.4 miles from the Alternative 3 alignment. Nesting colonies of white pelicans, great blue herons, or

double-crested cormorants are not known to occur within a 1-mile buffer area of any of the alternative alignment (Olson 2005b and Johnson 2005). Waterfowl nesting tends to be concentrated within uplands adjacent to wetlands (Ringelman 1992); thus, the construction and operation of the transmission line would not be expected to impact waterfowl nesting associated with the WPAs.

The alignments cross land to the east (Alternatives 2 and 3) or south and west (Alternative 4) of Benton Lake NWR. Alternative 2 and 3 routes are approximately 0.8 to 0.9 mile away from Benton Lake, but much closer to the eastern boundary of the NWR, while Alternative 4 is more than 2 miles from the nearest NWR boundary. Birds use Benton Lake NWR and other area lakes and wetlands during spring and fall migration.

As discussed above, impacts to birds would be minimized and avoided through the implementation of environmental protection measures. MATL's line would entail "avian- safe" structures, which provide adequate clearance to avoid electrocutions. MATL would apply *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*, developed by the EEI, APLIC and the California Energy Commission (2006), as appropriate, during design and construction of overhead structures and substation additions. Areas with a higher likelihood for avian collisions, such as known flyways, were avoided. Avian collisions would be reduced as approved line marking devices would be installed, at intervals suggested by manufacturer's recommendations, on overhead ground wires within all stream, river and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, Teton River, east of the Benton Lake NWR boundary and within a ½ mile of the refuge boundary. Line marking devices would also be placed within a ¼ mile buffer on either side of streams, rivers, or wetlands, and such marking devices have been reported to reduce mortality by approximately 40 to 90 percent. Annual mortality surveys would be conducted within these areas to ensure that the line marking devices are functioning properly. In addition, to ensure that adverse effects would be avoided, MATL would complete an Avian Protection Plan that would outline the elements of the MATL project that would reduce the avian risks and avian mortality.

3.8.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.9 Fish

3.9.1 Analysis Methods

The following section discusses the occurrence and distribution of fish species within the Project area. Threatened, endangered, candidate, and sensitive fish species found within the Project area are discussed in Section 3.10.

Analysis Area

The analysis area includes all fish bearing waterways within the MFSA application Project study area (**Figure 1.1-1**). These waterways include: the Missouri River, the Marias River, the Teton River, their associated tributaries, and several man-made stock ponds and reservoirs.

Information Sources

Information on fisheries within the Project area was obtained from a variety of sources, including: literature review, reports from the NHP and FWP, technical reports, and peer-reviewed journal articles. Species lists, valuable information, and mapping of sensitive species and important habitats were obtained through meetings and correspondence with personnel from the FWS and FWP (MATL 2006b).

3.9.2 Affected Environment

The Project area crosses one sub-basin of the Milk Watershed and seven sub-basins of the Marias Watershed. The sub-basins crossed are: Upper Missouri-Dearborn Rivers, Sun River, Teton River, Marias River, Two Medicine River, Willow Creek, and Cut Bank Creek sub-basins in the Marias Watershed and the Upper Milk River sub-basin in the Milk Watershed. The only water body identified by the FWP as a blue ribbon or red ribbon river in the Project area is the Missouri River. The river miles at which all three alternatives cross the Marias and Teton rivers are considered Habitat Class 3 and Sport Class 4 fisheries.

Several intermittent gulches, coulees, creeks, and rivers cross the Project area. The majority of the water bodies act as tributaries to three major rivers within the Project area, the Marias, Teton, and Missouri. Both the Marias and Teton rivers drain into the Missouri River.

The gulches and coulees in the Project area are typically dry during the summer and do not support fisheries. Lakes are predominately man-made stock ponds, reservoirs, or prairie potholes. Water bodies and lakes that hold water year-round are generally

capable of supporting both warm-water and cold-water fish species. A list of fish species known to occur within the Project area is in **Table 3.9-1.**

TABLE 3.9-1
FISH SPECIES KNOWN TO OCCUR IN THE PROJECT AREA

Game Fish		Rough Fish/Non-Game Fish		Forage Fish	
Common Name	***Scientific Name***	***Common Name***	***Scientific Name***	***Common Name***	***Scientific Name***
Brown Trout	*Salmo trutta*	Common Carp	*Cyprinus carpio*	Emerald Shiner	*Notropis atherinoides*
Brook Trout	*Salvelinus fontinalis*	Bigmouth Buffalo	*Ictiobus cyprinellus*	Fathead Minnow	*Pimephales promelas*
Rainbow Trout	*Oncorhynchus mykiss*	Freshwater Drum	*Aplodinotus grunniens*	Flathead Chub	*Platygobio gracilis*
Burbot	*Lota lota*	River Carpsucker	*Carpiodes carpio*	Lake Chub	*Couesius plumbeus*
Channel Catfish	*Ictalurus punctatus*	Shorthead Redhorse	*Moxostoma macrolepidotum*	Longnose Dace	*Rhinichthys cataractae*
Northern Pike	*Esox lucius*	Smallmouth Buffalo	*Ictiobus bubalus*	Longnose Sucker	*Catostomus catostomus*
Shovelnose Sturgeon	*Scaphirhynchus platorynchus*			Mottled Sculpin	*Cottus bairdi*
Walleye	*Sander vitreus*			Mountain Sucker	*Catostomus platyrhynchus*
Yellow Perch	*Perca flavescens*			White Sucker	*Catostomus commersoni*
Smallmouth Bass	*Micropterus dolomieu*			Goldeye	*Hiodon alosoides*
Mountain Whitefish	*Prosopium williamsoni*			Plains Minnow	*Hybognathus placitus*
Sauger S2	*Sander canadensis*			Blue Sucker S2, S3	*Cycleptus elongatus*
Sauger X Walleye Hybrid				Spottail Shiner	*Notropis hudsonius*
Golden Trout	*Oncorhynchus mykiss aguabonita*			Western Silvery Minnow	*Hybognathus argyritis*
Paddlefish S1, S2	*Polyodon spathula*			Sturgeon Chub S2	*Macrhybopsis gelida*
				Stonecat	*Noturus flavus*
				Cisco	*Coregonus artedi*

Notes:
Source: MATL 2006b and Montana Fisheries Information System Database (2005).
S1: Critically imperiled because of extreme rarity and/or other factors making it highly vulnerable to extinction.
S2: Imperiled because of rarity and/or other factors making it vulnerable to extinction.
S3: Vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations.

3.9.3 Environmental Impacts

3.9.3.1 Alternative 1 - No Action

Under the No Action alternative, the proposed Project would not be implemented. There would be no construction activities or associated activities related to a new transmission line and, existing electrical transmission service would be maintained and operated at its current level. This would result in no additional impacts to fish in the Project area.

3.9.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Since all action alternatives would entail the proposed transmission line crossing fish-bearing water bodies, and impacts on the water bodies would not vary substantially between alternatives, impacts to fish and their habitat for all action alternatives are addressed within this section.

Potential impacts on the fish-bearing water bodies center around several disturbance related issues, such as: an increase in sediment transport due to increased erosion from disturbed and newly exposed areas; degradation of water quality as a result of contaminants (that is, herbicides or petroleum products); increased temperatures within water bodies as a result of removed riparian and streamside vegetation; or direct impacts or disturbance to fish and their habitats. None of the alternative alignments closely parallel streams or lakes where fish are present. Most crossings of stream habitats are short.

Impacts related to increased erosion and sediment transport would be mitigated and reduced through the implementation of best management practices and environmental protection measures. An erosion control plan would be developed and implemented during construction. Erosion control measures, such as water bars, drainage contours, straw bales, and filter cloths would reduce erosion within disturbed areas and largely prevent sediment transport to water bodies. In addition, disturbed areas would be contoured and seeded after completion of construction activities, which would reduce erosion and sediment transport. Due to the implementation of the environmental protection measures, increased sediment within water bodies as a result of the action alternatives would likely not occur, and fish and their habitat would likely not be impacted.

Implementation of a spill prevention plan and environmental protection measures would ensure that water quality is protected from petroleum products and herbicides, and impacts on fish or their habitat would not likely occur.

Impacts on fish habitat as a result of the removal of streamside vegetation and increased water temperatures would not be expected to occur because structures would not be sited within fish-bearing water bodies and there would be little or no removal of streamside vegetation as a result of construction or related activities.

The structures for Alternatives 2, 3, and 4 would not be sited within any water bodies, and construction activities would not occur within water bodies that support fish populations. Implementation of the action alternatives would not be likely to impact any fish populations or species distribution.

3.9.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.10 Threatened, Endangered, and Candidate for Listing Species

3.10.1 Analysis Methods

Analysis Areas

This section addresses the current occurrence, distribution of, and potential impacts to species that are listed as threatened and endangered species under the Endangered Species Act (ESA), species that are candidates for listing, and those that have been proposed for listing. In addition, species with limited members or distribution as indicated by the NHP and the FWP and BLM sensitive species also are discussed in this section. Only species in the Project area are discussed. Analysis areas for vegetation, wildlife, and fish are the same as described in Sections 3.7.1, 3.8.1, and 3.9.1.

Information Sources

Vegetation information sources are the same as described in Section 3.7.1. Wildlife and fish information sources are the same as described in Sections 3.8.1 and 3.9.1.

3.10.2 Affected Environment

3.10.2.1 Vegetation

Species of concern in Montana are those species that are at risk or potentially at risk due to a combination of rarity, restricted distribution, habitat loss, or other limiting factors (MATL 2006b). A variety of habitats in the Project area could support species of concern. Five plant species of concern have been reported to occur within or adjacent to the Project area (**Table 3.10-1).** Of these species, two (both non-vascular) are historic records. The three vascular species documented in Glacier and Cascade counties are found in similar habitats: wet soils or shallow water around ponds and meadows along streams.

TABLE 3.10-1
PLANT SPECIES OF CONCERN REPORTED TO OCCUR WITHIN OR ADJACENT TO THE PROJECT AREA

Common Name	Scientific Name	State Rank	County	Habitat
Vascular Plants				
Many-headed Sedge	*Carex sychnocephala*	S1[a]	Glacier; Cascade	Moist soil of meadows along streams and ponds in the valleys and on the plains.
Long Sheath Waterweed	*Elodea longivaginata*	S1	Glacier	Shallow water of ponds and lakes on the plains.
Chaffweed	*Centunculus minimus*	S2[b]	Cascade	Vernally wet, sparsely vegetated soil around ponds and along rivers and streams in the valleys and on the plains.
Non-vascular Plants				
Entosthodon moss	*Entosthodon rubiginosus*	SH[c]	Cascade	Seasonally damp and alkaline, usually silt or clay-rich soil at the edges of ponds, lakes, and sloughs, and on seepage slopes in relatively dry environments.
American funaria moss	*Funaria Americana*	SH	Cascade	Little information is available; however, it is thought that this species prefers limestone caves and cliffs.

Notes:

Source: MATL 2006b

[a] S1: Critically imperiled because of extreme rarity and/or other factors making it highly vulnerable to extinction.

[b] S2: Imperiled because of rarity and/or other factors making it vulnerable to extinction.

[c] SH: Historical, known only from records over 50 year ago; may be rediscovered.

3.10.2.2 Wildlife

Special status animal species the NHP reported as occurring within or adjacent to the Project area are in **Table 3.10-2.**

TABLE 3.10-2
SPECIAL STATUS WILDLIFE SPECIES REPORTED TO OCCUR WITHIN OR ADJACENT TO THE PROJECT AREA BY NHP

Common Name	Scientific Name	Status[a]		
		FWS	BLM	State
Burrowing Owl	*Athene cunicularia*	--	Sensitive	S2B
Ferruginous Hawk	*Buteo regalis*	--	Sensitive	S2B
Baird's Sparrow	*Ammodramus bairdii*	--	Sensitive	S2B
Black-necked Stilt	*Himantopus mexicanus*	--	--	S3 S4B
Black-crowned Night-heron	*Nycticorax nycticorax*	--	--	S3B
Peregrine Falcon	*Falco peregrinus*	--	Sensitive	S2B
Common Tern	*Sterna hirundo*	--	--	S3B
White-faced Ibis	*Plegadis chihi*	--	Sensitive	S1B
Franklin's Gull	*Larus pipixcan*	--	Sensitive	S3B
Black-tailed Prairie Dog	*Cynomys ludovicianus*	C	Sensitive	S3
Long-billed Curlew	*Numenius americanus*	--	Sensitive	S2B
Bald Eagle	*Haliaeetus leucocephalus*	--	--	S3B, S3N
Black-footed Ferret	*Mustela nigripes*	E, XN	Sensitive	S1

Notes:

Source: MATL 2006b.

[a] FWS: E = endangered; C = candidate; XN =experimental, nonessential - - = not listed

BLM: Sensitive = either known to be imperiled and suspected to occur on BLM lands, suspected to be imperiled and documented on BLM lands, or needing further study for other reasons; -- = not listed

State:

B = a state rank modifier indicating breeding status for a migratory species;

N = non-breeding.

S1 = critically imperiled because of extreme rarity, or because of some factor of its biology making it especially vulnerable to extirpation;

S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range;

S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations;

S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery;

Bald Eagle

The bald eagle is primarily a species of riparian and lacustrine habitats (forested areas along rivers and lakes), especially during the breeding season. Montana Fish, Wildlife and Parks delineated the project area as predominantly year-long habitat, with some winter habitat. Important year-round habitat includes wetlands, major water bodies, spring spawning streams, ungulate winter ranges, and open water areas. Wintering habitat may include upland sites. Nests are typically within 1 mile of permanent water (Anthony and Isaacs 1989). Nesting site selection is dependent upon maximum local food availability and minimum disturbance from human activity (Montana Bald Eagle Working Group 1994). Perch and roost sites are also important habitat components for bald eagles. Preferred perch sites include live trees and snags that provide good visibility and are near nest sites or foraging areas.

The cottonwood stands along the Marias and Teton rivers may be used by bald eagles during the winter; however, they are not known to nest in the Project area (Olson 2005b). The majority of birds nesting in Montana are found in the western third of the state, although breeding pairs may be found along many of the major rivers and lakes in the central portion of the state and along the Yellowstone and Missouri rivers to the eastern prairie lands (NHP 2004). East of the Continental Divide, the presence of bald eagles may be somewhat more seasonally dependent than in the western part of the state. Migrants from northern climates travel through Montana to reach wintering grounds further south.

The bald eagle has officially been removed from the Federal threatened and endangered species list (Final Rule published July 9, 2007, and effective August 8, 2007) and FWS has issued new guidelines for management of this species under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act (May 2007).

Black-footed Ferret

Black-footed ferret habitat occurs within the project area as they are closely associated with prairie dog populations, and prairie dogs occur within the project area. Black-footed ferrets use open habitat, such as grasslands, steppe, and shrub steppe. The ferrets do not dig their own burrows and rely on abandoned prairie dog burrows for shelter. Only large prairie dog complexes (several hundred acres of closely spaced colonies) can support and sustain a breeding population of black-footed ferrets (Miller et al. 1996). A black-tailed prairie dog town is located southeast of Shelby in Toole County north of the Marias River.

All known populations of black-footed ferrets are a result of the reintroduction of captive bred ferrets. In 1998, a total of 217 kits were allocated for reintroduction and field breeding programs. Seventy-seven ferret kits were allocated to two separate

release sites on a Montana experimental reintroduction area: 55 kits to the Ft. Belknap Indian Reservation and 22 kits to the Charles M. Russell National Wildlife Refuge. The Fort Belnap Reservation is the closest release site to the project area, and it is approximately 125 miles away from the eastern boundary of the project area. Reintroduced black-footed ferret populations have been designated "non-essential experimental" populations under the Endangered Species Act. This designation allows Federal, state, and tribal resource managers and private citizens more flexibility in managing new populations. The Fish and Wildlife Service can develop special management regulations which are more flexible than the rules for species listed as endangered.

Ferruginous Hawk

A breeding population of approximately 20 pairs of ferruginous hawks was located in 1994 in the Kevin Rim and Buckley Coulee area in the northeastern and north-central portions of the Project area. NHP and FWP biologists indicate this species continues to breed along Kevin Rim (Olson 2005a). This area is a mix of privately owned land and state trust land in Toole County. Kevin Rim is a sandstone escarpment that runs approximately 8 miles, generally north-south, and faces east. The cliffs and adjacent badlands, grasslands, and draws host a very high density of raptor nests, primarily ferruginous hawks and prairie falcon. Two biologists walked along approximately 3 miles of Kevin Rim in early May 2005 surveying for raptor nests. No nests and no raptors were observed at that time (MATL 2006b).

Ferruginous hawks also occur in and around Benton Lake NWR in Cascade, Chouteau, and Teton counties. The area is a mix of Federally managed land (Benton Lake NWR), privately owned land, and state trust land. A breeding population of at least two pairs has been recorded within the refuge. The full extent of occupied breeding habitat is unknown. The habitat of ferruginous hawks in Montana has been studied extensively and described as mixed-grass prairie, shrub-grasslands, grasslands, grass-sagebrush complex, and sagebrush steppe (NHP 2004).

Peregrine Falcon

An historical peregrine eyrie is known to occur on private land near the confluence of Cut Bank Creek and Two Medicine River, where the Marias River forms in Glacier County. Eyries have a high potential for re-occupancy. It is unknown when peregrine falcons last occupied this eyrie. Peregrine falcons arrive in northern breeding areas in late April-early May, and departure begins in late August-early September. Nests typically are situated on ledges of vertical cliffs, often with a sheltering overhang. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites can include tall buildings, bridges, rock quarries, and raised platforms (NHP 2004).

Black-tailed Prairie Dog

A black-tailed prairie dog town is located southeast of Shelby in Toole County north of the Marias River. This particular population is at the western extent of this species' known distribution (Olson 2005a). Prairie dog colonies are found on flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation. The most frequently occupied habitat in Montana is dominated by western wheatgrass, blue grama, and big sagebrush. Colonies are associated with silty clay loams, sandy clay loams, and loams. Fine to medium textured soils are preferred, presumably because burrows tend to retain their shape and strength better than in coarse, loose soils. In Montana, colonies tend to be associated with areas heavily used by cattle, such as near water tanks and long-term supplemental feeding sites (NHP 2004).

Baird's Sparrow

Baird's sparrow nests and individual birds have been reported in Teton County on private land. The most recent data available are from the early 1990s. This species is more common east of the Continental Divide in Montana. The majority of observations of the species in the state occur at the earliest in May and the latest in July (NHP 2004). Baird's sparrows prefer to nest in native prairie, but habitat structure may be more important than plant species composition. Nesting may take place in cultivated grasses (nesting has been observed in crested wheat, while smooth brome is avoided). This sparrow has also been found to use drier areas during unusually wet years and wet areas during unusually dry years. Because a relatively complex structure is so important for nesting, areas with little to no grazing activity are required (NHP 2004).

Burrowing Owl

Burrowing owl nesting sites are known to occur on Benton Lake NWR in Cascade and Chouteau counties and also in Pondera County. Fledglings have been observed on at least two nest sites on the refuge. Burrowing owls are migratory in the northern portion of their range, which includes Montana. The extreme dates of observation for burrowing owls in Montana are, at the earliest, March and, the latest, October (NHP 2005). The majority of the spring observations of this species occur in April with most fall observations in September (NHP 2004).

Burrowing owls are found in open grasslands, where abandoned burrows dug by mammals such as ground squirrels, prairie dogs, and badgers are available. Black-tailed prairie dog and Richardson's ground squirrel colonies provide the primary and secondary habitat for burrowing owls in the state. The burrows may be enlarged or modified, making them more suitable. Burrowing owls spend much time on the ground or on low perches, such as fence posts or dirt mounds (NHP 2004).

Burrowing owl nesting site surveys were conducted in July 2005 to help assess use of the Project area by the species. With the guidance of a FWP biologist (Olson 2005a) surveys were focused north of the Marias River, north of Highway 2, and along the Kevin Rim. Point-count surveys were used to survey for burrowing owls in July 2005 (Conway and Simon 2003). Point-count survey routes were selected based on habitat and anecdotal observation information by landowners and the FWP biologist. At each survey point, the observer pulled the vehicle off the road, parked on the shoulder, exited the vehicle, and performed a 6-minute point-count survey listening for burrowing owl calls and, using binoculars, scanning the surrounding landscape for owls. The biologists did not observe any burrowing owls during field investigations; however, landowners have reported seeing them within 1 mile of the proposed routes, north of the Marias River and in another area near the alignment off Bullhead Coulee road (Jacobson 2006).

Black-necked Stilt

Approximately 25 black-necked stilt nests were found in 1988 on Benton Lake NWR in Cascade, Chouteau, and Teton counties. This species continues to migrate to and nest on the refuge (Johnson 2005). Extreme migration dates in Montana are April, reported at Benton Lake NWR, and September, reported at Helena Valley Regulating Reservoir. In Montana, black-necked stilts nest in medium to large wetland complexes of open marshes and meadows, often in alkali areas.

Black-crowned Night-Heron

The first confirmed nesting of this species in Montana was in 1979, although records indicate presence of the birds as early as 1967 in the Benton Lake NWR area. The earliest records for Montana indicate arrival in April, with sightings throughout the summer months extending into September, when most of the individuals begin their southerly movement. In 2000, one individual was found in the Chester area and stayed until October. Although highly adaptable to a variety of habitats, the black-crowned night-heron is likely to use shallow bulrush (*Scirpus* spp.) or cattail (*Typha* spp.) marshes, most often within a grassland landscape. In addition, they will nest in cottonwoods, willows, or other wetland vegetation that allows them to nest over water or on islands that may afford them protection from mammalian predators. Most colonies are located in large wetland complexes, typically with a one-to-one ratio of open water and emergent vegetation (NHP 2004).

Common Tern

Approximately 75 common tern nests were found on Benton Lake NWR in 1988, and this species continues to nest on the refuge (Johnson 2005). The earliest migration date for common tern in Montana is in April, but the most concentrated arrival of birds is in

May. Breeding has been recorded in May, June, and July, with fall departure beginning in late August and continuing into September. Nesting in Montana generally occurs on sparsely vegetated islands in large bodies of water. Nest substrate at these locations includes sandy, pebbly, or stony substrate surrounded by matted or scattered vegetation (NHP 2004).

White-faced Ibis

Approximately 15 white-faced ibis nests were found in 1988 on Benton Lake NWR. The number and location of their nests on the refuge vary greatly from year to year. It is reported that they often nest with the black-crowned night heron. White-faced ibises usually leave their wintering grounds in late March to early April. The observation in Montana was at Lee Metcalf NWR in March, but the most concentrated arrival in Montana occurs in May. In Montana, most begin their southern movement in August, and by September they are usually gone from the state (NHP 2004).

The white-faced ibis breeding habitat is typically freshwater wetlands, including ponds, swamps, and marshes with pockets of emergent vegetation. They also use flooded hay meadows and agricultural fields as feeding locations. In Montana, these ibises usually use old stems in cattails, hardstem bulrush, or alkali bulrush over shallow water as their nesting habitat (DuBois 1989). Because water conditions usually determine whether nesting occurs in a particular area, their nesting sites can often move around from year to year. However, it is a fairly adaptable species, and the primary breeding requirement is colony and roosting site isolation (NHP 2004).

Franklin's Gull

In 1994, approximately 13,000 Franklin's gull nests were estimated to have occurred on Benton Lake NWR. The Franklin's gull generally returns to the state in mid-April and is gone by early to mid-October. Preferring large, relatively permanent prairie marsh complexes, they build nests over water on a supporting structure of emergent vegetation. Nesting over water differs from the nesting habits of Montana's other, generally ground nesting, gulls. Franklin's gulls prefer to nest at sites with intermediate vegetation density, interspersed with open water of various sizes. One key feature of selected nesting sites is that the water levels remain high enough throughout the nesting period, or at least until the young can fledge, in order to provide protection from predators. During migration, the Franklin's gull can be found feeding on dry land, especially in cultivated fields prior to planting (NHP 2004).

Long-Billed Curlew

The long-billed curlew is ranked as S2B by the state and is considered at risk because of very limited and/or declining numbers, range, and/or habitat. The NHP did not have

any element occurrence records for this species within the Project area; however, long-billed curlews were observed within the Project area. The long-billed curlew is a migratory summer resident that breeds and nests in Montana. The species inhabits shortgrass prairie communities, with grassland structure more important than species composition, and appears to require large blocks of grasslands with diverse foraging habitats. The long-billed curlew nests in well-drained native grasslands, sagebrush, and agricultural lands with a gently rolling topography. The species migrates from coastal habitats in California, Texas, and Mexico to Montana, where it is typically present between May and August.

3.10.2.3 Fish

Four fish species identified within the Project area are listed by the NHP as threatened, endangered, or of special concern under the Montana Endangered Species Act (**Table 3.9-1**). The NHP species of concern occurrence report did not include any fish species of concern. However, a search of the Montana Fisheries Information System found that three special status fish species potentially occur in the Teton River within the Project area. These three species are sauger, blue sucker, and sturgeon chub.

The sauger is considered at risk by the State because of very limited and/or declining numbers, range, and/or habitat. The current distribution of the sauger in Montana includes the main stem of the Missouri River and portions of several tributaries, including the Teton River near where the transmission line would cross. The sauger is physiologically adapted for turbid environments, and the species typically inhabits large turbid rivers and shallow lakes. Saugers spawn in large tributaries, and juveniles rear in off-channel habitats during spring and summer before shifting to main channel habitats in autumn.

The blue sucker is considered at risk/potentially at risk by the State. Eastern Montana is the home of the blue sucker, and it appears to inhabit the larger streams, primarily the Missouri and Yellowstone rivers. They make long spawning movements from the lower Missouri River to upstream areas and tributary streams, followed by dispersal downstream. They prefer waters with low turbidity and swift current (NHP 2004). The Montana Fisheries Information System indicates that the blue sucker can be found in the Teton River within the Project area. This would be the western extent of this species' distribution within Montana.

The State considers the sturgeon chub at risk. The sturgeon chub is one of several native minnows found east of the continental divide. Sturgeon chubs are rarely seen or collected, so little is known about them. Their food habits are unknown, but the ventral mouth and short intestine indicate they feed on bottom-dwelling insects. Sturgeon chubs are found in turbid water with moderate to strong current over bottoms ranging from rocks and gravel to coarse sand (NHP 2004).

3.10.3 Environmental Impacts

3.10.3.1 Alternative 1 – No Action

Under the No Action alternative, the proposed Project would not be implemented. There would be no construction activities or associated activities related to a new transmission line, and existing electrical transmission service would be maintained and operated at its current level. This would result in no impacts to special status plant species, special status wildlife species, or special status fish or their populations within the Project area.

3.10.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Vegetation

Potential impacts to special status plant species for each alternative transmission line alignment were assessed through an evaluation of existing conditions and potential Project-related effects. These effects could include temporary disturbance, such as trampling, during construction and maintenance activities, habitat loss and fragmentation associated with structure footprints and access roads, the creation of new public access into undisturbed habitats, and possible noxious weed competition resulting from seed introduction from construction and maintenance activities. See Section 3.7.3 for further discussion of the proposed transmission line effects on native plants. Three state sensitive wetland species occur in or adjacent to the Project area; however, no Federally listed species were located in the area. The state sensitive species are many-headed sedge, long sheath waterweed, and chaffweed (**Table 3.10-1**). Historic occurrences of the state sensitive non-vascular species entosthodon moss and American funaria moss were recorded south of the Missouri River, outside of the study area.

The effects on special status vegetation species associated with construction, operation, and maintenance of the proposed transmission line would not differ from those discussed in Section 3.7.3. All special status vegetation species known are located outside of the analysis area and are therefore not likely to be affected by the alternative transmission line alignments.

Of the action alternatives, Alternative 2 has the least likelihood of affecting species of concern because it crosses the least riparian habitat while Alternative 4 has the greatest potential to affect species of concern because it crosses the most riparian habitat (**Table 3.7-4**).

Wildlife

The agencies conducted informal consultation with the USFWS under section 7 of the ESA (**Appendix P**). A biological assessment of the potential impact of the proposed Project was prepared and submitted to USFWS with a request for concurrence with its conclusion that the proposed Project may affect, but is not likely to adversely affect, bald eagles or their critical habitat and would have no effect on black-footed ferrets or their critical habitat. On September 16, 2008 USFWS sent a letter of concurrence (**Appendix P**).

Potential impacts to special status wildlife species for each alternative transmission line alignment were assessed through an evaluation of existing conditions and potential project-related effects. These effects could include temporary disturbance during construction and maintenance activities, habitat loss and fragmentation associated with clearing and grading of structure sites and access roads, and the creation of new public access into undisturbed habitats. For a more detailed discussion of general impacts of the proposed transmission line on wildlife see Section 3.8.3. Sensitive or important wildlife habitats for species of concern within the project area include intact native prairie grasslands that provide habitat for sharp-tailed grouse, long-billed curlew, and other grassland bird species, and mature riparian cottonwood stands that represent a unique habitat type and potential bald eagle winter habitat. Alternatives 3 and 4 would cross cottonwood stands on the Marias and Teton rivers.

The alternative alignments traverse the known habitat range of five species of concern. **Table 3.10-3** lists the linear miles of special status species' habitat range along each of the three action alternatives.

TABLE 3.10-3
LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE

Common Name	State Rank	Alternative		
		2	3	4
Black-crowned night-heron	S3B	11.2	9.1	2.6
Black-necked stilt	S3, S4B	11.2	9.1	2.6
Burrowing owl	S2B	4.2	3.9	0
Ferruginous hawk	S2B	6.5	0	7.0
Peregrine falcon	S2B	2.5	2.2	3.0
Total for All species (Minus the overlap)	--	19.9	11.3	11.7

Notes:

Source: NHP. 2005. GIS Analyses of Element Occurrence Data. Montana Natural Heritage Program, Helena, Montana. Available at: http://nhp.nris.state.mt.us/mbd,.

State: S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range; B = a state rank modifier indicating breeding status for a migratory species; S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations; S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery.

-- = not applicable

Bald Eagles

Bald eagles within the project area would be minimally affected by the construction activities related to the transmission line as disturbance would be short term, and breeding habitat would not be impacted. Project construction activities could result in disturbance and behavioral interference of wintering bald eagles within the project area. Noise, fugitive dust, and activities associated with site clearing and grading, installation of support structures, construction of access roads and support facilities, and associated equipment could disturb and temporarily displace bald eagles within and adjacent to impact areas. Disturbance associated with the installation and development of the transmission line would result in some habitat loss and fragmentation. Project construction activities, such as site clearing, site grading, and development of access roads and support facilities, would result in a temporary loss of approximately 72 to 80 acres of potential of upland winter foraging habitat in the project area (MATL 2006a). While a portion of disturbed areas would be reclaimed upon completion of construction activities, permanent habitat loss would occur within the footprints of support structures, and access roads.

New transmission lines could potentially impact bald eagles through electrocution. Electrocution occurs when birds with large wingspans come in contact with either two conductors or a conductor and a grounding device. Several factors influence the potential for avian electrocution: topography, vegetation, available prey, behavior, and inadequate separation between energized conductors and grounded hardware providing two points of contact (APLIC and FWS 2005). MATL transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution. MATL's line would entail "avian safe" structures, which provide adequate clearance to accommodate a large bird between energized and/or grounded parts. These structures typically have at least 60 inches of horizontal separation, which can accommodate the wrist-to-wrist distance of an eagle. In addition, vertical separation of at least 48 inches can accommodate the height of an eagle from its feet to the top of its head (APLIC and FWS 2005). MATL would apply *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*, developed by the EEI, APLIC, and the California Energy Commission (2006), as appropriate, during design and construction of overhead structures and substation additions.

The operation of the proposed transmission line could potentially impact bald eagles that may use the project area. As with all birds and raptors, there is the potential for transmission line related collisions. Raptor species, such as eagles, are less likely to collide with power lines, perhaps due to their excellent eyesight and tendency to not fly at dusk or in low visibility weather conditions (Olendorff et al. 1981). Impacts would be avoided as the proposed action would implement environmental protection measures that would reduce the potential for avian collisions. Areas with a higher likelihood for avian collisions, such as known flyways, were avoided.

Avian collisions would be reduced as approved line marking devices would be installed, at intervals based on manufacturer's recommendations, on overhead ground wires within ¼ mile of all stream, river, and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, and Teton River. In addition, line markers would be placed within a ½ mile of the east boundary of Benton Lake NWR. These marking devices would also be placed on any additional important flyway or migration routes that may be identified during pre-construction or construction activities.

Annual mortality surveys by MATL would be conducted within these areas to ensure that the line marking devices are functioning properly. In addition, to ensure that adverse effects would be avoided, MATL would complete and submit to the USFWS an Avian Protection Plan (APP) that would outline the elements of the MATL project that would reduce the avian risks and avian mortality.

As outlined in the Montana Bald Eagle Management Plan (MBEWG 1994), the management goal for Montana populations of bald eagles is to facilitate population growth until the number of viable bald eagle breeding areas peaks. The transmission line design would follow the management plan guidelines and would be in compliance with the management goal as there would likely be no adverse effects to bald eagles. The transmission line design would also be in compliance with the USFWS National Bald Eagle Management Guidelines that were released in May 2007.

Black-footed Ferrets (Federally Endangered)

Since there are no known occurrences of black-footed ferrets within or adjacent to the project area, impacts to ferrets could potentially occur by way of destruction of habitat (prairie dog towns). The only known prairie dog town in the project area is located southeast of Shelby in Toole County, north of the Marias River. It would not be disturbed by the proposed action. This particular population is at the western extent of this species' known distribution (Olson 2005b).

Installation and development of the proposed transmission line could cause direct injury or mortality to undocumented prairie dog towns within the impact areas. Activities such as site clearing and grading, construction of access roads and support facilities, and off-road travel during construction could destroy any undocumented prairie dog towns. Construction related disturbances would be short term (6 to 7 months) and confined to the construction site or adjacent storage areas. Since black-footed ferrets are not known to occur within the project area, they would not be directly impacted by the proposed action. Any indirect impacts by way of disturbance to undocumented prairie dog towns would be temporary and would not affect current populations of black-footed ferrets.

Burrowing Owl (State Sensitive)
The transmission line alignments would pass through burrowing owl habitat along the east side of Benton Lake NWR. While biologists did not observe any burrowing owls during field investigations, FWP biologists (Olson 2005b) and landowners have reported seeing this species within 1 mile of the action alternative alignments, north of the Marias River and along Bullhead Coulee. The installation of support structures may disturb undetected burrows and displace burrowing owls. However, the amount of habitat loss would be relatively minor, and displaced owls would have adjacent burrow habitat to occupy in the event of disruption of burrows. Operation of the proposed transmission line could increase owl collisions. This would be expected to be rare as owls have excellent vision, and MATL would be using line-marking devices within designated areas. For more discussion of avian collisions and electrocutions from transmission lines see **Section 3.8**.

Black-necked Stilt and Black-crowned Night-heron (State Sensitive)
The transmission line alignments pass through the eastern edge of potential nesting grounds for the black-necked stilt and black-crowned night heron just outside the eastern boundary of Benton Lake NWR. This area is a potential migration corridor on the east side of Benton Lake NWR. Nesting stilts and herons may be disturbed and displaced during nesting season as a result of construction activities. This may interfere with the nest success of birds within or adjacent to the construction areas; however, construction activities would be temporary, and the opportunity for re-nesting would likely occur. Permanent habitat loss would be limited to the footprint of the support structures and access roads. This habitat loss would be a relatively minor amount with respect to the available habitat within the area.

Ferruginous Hawk (State Sensitive)
Ferruginous hawk habitat is known to occur within and adjacent to the Project area. Impacts to ferruginous hawks would not vary from impacts to other raptors. A discussion of impacts to raptors is in **Section 3.8**.

Long-billed Curlew (State Sensitive)
Long-billed curlews were observed in wheat-stubble fields and CRP land during field investigations throughout the summer 2005 (MATL 2006b) and in 2007 (DEQ 2007). Long-billed curlews would experience temporary disturbance and displacement during installation; however, construction activities would be temporary, and the opportunity for re-nesting would likely occur. There would be habitat loss as a result of support structures and access roads; however, this would be relatively minor and would not impact populations within the area. See **Section 3.8** for further discussion of the proposed transmission line impacts on birds.

Peregrine Falcon (State Sensitive)
The transmission line alignments cross the location of a historic peregrine falcon eyrie along the Marias River. In May, July, and August 2005 biologists surveyed the confluence of Cut Bank Creek and Two Medicine River looking for the eyrie and signs of peregrine falcons. Neither eyries nor peregrine falcons were observed (MATL 2006b). It is unknown when peregrine falcons last occupied or were sighted around this eyrie (Olson 2005b). The construction activities associated with the proposed transmission line could potentially disturb the eyrie, if occupied. Disturbances would be temporary and would not directly disturb any occupied nest sites. For a discussion of collision and electrocution impacts on raptors see **Section 3.8**.

Fish

A search of the Montana Fisheries Information System indicated that three special status (State Sensitive) fish species potentially occur in the Teton River within the Project area. These three species are: sauger, blue sucker, and sturgeon chub. No Federally threatened, endangered, or candidate fish species were identified in the Project area.

Effects on special status fish associated with the implementation of the proposed transmission line would not differ from those discussed in **Section 3.9.3**.

3.10.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.11 Air Quality

3.11.1 Analysis Methods

Potential impacts to air quality from installation of the power transmission line were evaluated using criteria pollutant emission rates from sources (for example, equipment engines and dust from construction activities) and air regulations (including emission standards, as applicable) pertinent to the project.

Analysis Area

The analysis area for air resources is the MFSA application Project study area (**Figure 1.1-1**) and the surrounding air shed within a distance of 10 miles. The analysis area is located in north central Montana and exhibits terrain described as rolling hills with elevations ranging from 3,400 feet (Great Falls) to 3,800 feet (Cut Bank) above mean sea level.

Information Sources

Base information for the analysis of air resources was derived from the Montana MFSA application (MATL 2006b). Base information includes data such as the alignments, area impacted by construction activities, equipment type, and duration of construction. Comparative information, such as ambient air quality, atmospheric conditions, and existing air emission sources, was derived from databases maintained by National Oceanic and Atmospheric Administration (NOAA) (2006), EPA (2006a, 2006b), WRCC (2006), and DEQ (2006a). Regulatory standards for air quality (for example, criteria pollutants) were obtained from EPA (2006b) and DEQ (2006a, 2006b).

3.11.2 Affected Environment

Air quality in the analysis area is affected by activities currently conducted within the area. Examples of such activities include fixed facilities such as petroleum refining plants (refineries), crude oil pumps and natural gas compressor stations, petroleum product terminals, coal-fired electrical generating plants, concrete mix plants, asphalt mix plants, and crematoriums. Portable source examples include facilities such as gravel crushers, associated processing equipment, asphalt plants, and farming. Smoke from grass and forest fires from late spring through early fall can degrade air quality depending on the year.

Climate

Climate is influenced by major topographic features, including the plains of northern Montana and, 40 to 60 miles to the west, the Rocky Mountains. The continental divide and Rocky Mountains traverse the western half of Montana in roughly a north-south direction. The continental divide exerts a marked influence on local climate. Climate characteristics east of the continental divide are decidedly continental. In general, the analysis area (east of the continental divide) is colder, is characterized by lower precipitation, and is windier than conditions west of the divide.

Plains in the analysis area range in elevation from about 3,400 to 3,800 feet above mean sea level. Summers typically receive 1 to 2 inches of precipitation per month, and temperatures range from warm to hot. Winters, while usually cold, have few extended cold spells. Between cold waves, there are periods of mild but often windier weather called "chinook" weather. Wind speed and direction data for the subject area from NOAA show varying speeds and direction. Based on data collected at Great Falls, the typical wind speed averages 10.5 miles per hour and blows primarily from the southwest. Chinook winds frequently reach speeds of 25 to 50 miles per hour or more and can persist, with little interruption, for several days.

Temperature and Precipitation

Based on long-term data collected in Great Falls, Montana, the average daily temperature of the study area ranges from 30°F in January to 83°F in July. Average monthly precipitation ranges from 0.6 inch in February to 2.5 inches in May. The largest amount of precipitation occurs during the spring in May and June. Summer precipitation is often associated with thunderstorms. Total annual precipitation from 1961 to 1990 averaged 15.2 inches per year.

Fall and winter are cool to cold with few extended cold spells. Most precipitation during this period is in the form of snow; annual snowfall ranges from 14 to 60 inches with heavier accumulations generally recorded closer to Great Falls.

Air Quality

DEQ and the Federal government have established ambient air quality standards for criteria air pollutants, including carbon monoxide (CO), lead (Pb), sulfur dioxide (SO_2), particulate matter smaller than 10 microns (PM_{10}), ozone, and nitrogen oxides (NO_x). In 1997, the EPA revised the Federal primary and secondary particulate matter standards by establishing annual and 24-hour standards for particles 2.5 micrometers in diameter or smaller ($PM_{2.5}$).

Table 3-11.1 lists Federal and state air quality standards. National primary standards are levels of air quality necessary, with an adequate margin of safety, to protect public health. National secondary standards are levels of air quality necessary to protect public welfare from known or anticipated adverse effects of a regulated air pollutant.

The attainment status for pollutants within the project area is determined by monitoring levels of criteria pollutants for which National and Montana Ambient Air Quality Standards exist. Air quality in the analysis area is designated as attainment for all criteria pollutants. The attainment designation means that no violations of Montana or national air quality standards have been documented in the area. Great Falls was reclassified in 2002 by the EPA from non-attainment for carbon monoxide to attainment.

TABLE 3.11-1
STATE OF MONTANA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Air Quality Standard Concentration [a]	
		Montana	National
Ozone	1 hour	196 μg/m^3 (0.10 ppm)	235 μg/m^3 (0.12 ppm)
	8 hour	--	157 μg/m^3 (0.08 ppm)
Carbon Monoxide	1 hour	26,450 μg/m^3 (23 ppm)	40,000 μg/m^3 (35 ppm)
	8 hour	10,000 μg/m^3 (9.0 ppm)	10,000 μg/m^3 (9.0 ppm)
Nitrogen Oxides	Annual Mean	94 μg/m^3 (0.05 ppm)	100 μg/m^3 (0.053 ppm)
Sulfur Dioxide	Annual Mean	52 μg/m^3 (0.02 ppm)	80 μg/m^3 (0.03 ppm)
	24 hour	262 μg/m^3 (0.10 ppm)	365 μg/m^3 (0.14 ppm)
	3 hour	--	1,300 μg/m^3 (0.50 ppm)[b]
	1 hour	1,300 μg/m^3 (0.50 ppm)	--
Particulate Matter as PM_{10}	Annual	50 μg/m^3	--
	24 hour	150 μg/m^3	150 μg/m^3
Particulate Matter as $PM_{2.5}$	Annual	--	15 μg/m^3
	24 hour	--	35 μg/m^3
Lead (Pb)	Calendar quarter/90-day average[c]	1.5 μg/m^3	1.5 μg/m^3

Note: μg/m^3 = micrograms per cubic meter; ppm = parts per million; PM_{10} = Particulate Matter smaller than 10 microns; $PM_{2.5}$ = Particulate Matter smaller than 2.5 microns.
Sources: Administrative Rules of Montana (ARM) 17.8 and 40 CFR Part 50, National Primary and Secondary Ambient Air Quality Standards
a Primary Standard unless otherwise noted
b Secondary Standard
c Calendar quarter for National; 90-day average for Montana

Air Quality Monitoring Data

Ambient air quality data have been collected in or near the analysis area at monitoring stations in Great Falls and Browning, Montana. Data from monitoring stations in Browning (approximately 35 miles west of the power line alignment) were included to provide a second source (that is, city location) of information. Data collected at the Great Falls sites include criteria pollutants PM_{10}, $PM_{2.5}$, SO_2, and CO. Data collected at the Browning sites include the criteria pollutant PM_{10}. Air quality data for criteria pollutants are in **Appendix K.**

PSD Classification

The analysis area and vicinity are designated Class II, as defined by the Federal Prevention of Significant Deterioration (PSD) provision of the Clean Air Act. The PSD Class II designation allows for moderate growth or degradation of air quality within certain limits above baseline air quality. Industrial emission sources proposing construction or modifications will demonstrate that the proposed emissions would not cause major deterioration of air quality in all areas. The standards for significant deterioration are more stringent for Class I areas than for Class II.

Federal/State Mandatory Class I areas located within 100 miles of the project area include Scapegoat Wilderness (50 miles west), Bob Marshall Wilderness (50 miles west), Glacier National Park (40 miles west), and Gates of the Mountains Wilderness (50 miles southwest).

Existing Sources

There are multiple air emission sources in the vicinity of the project area. Some of the permitted fixed facilities include petroleum refining plants (refineries), crude oil pumps and natural gas compressor stations, petroleum product terminals, concrete mix plants, asphalt mix plants, crematoriums, and other facilities. Permitted portable facilities include gravel crushers and associated processing equipment and asphalt plants. These facilities operate under specific permit limits for criteria pollutants such as PM_{10}, $PM_{2.5}$, SO_2, CO, and Pb. Other potential emission sources (for example, fugitive dust and smoke sources) include farming, field and forest burning, and dust from gravel roads.

Particulate Emissions

Potential sources of particulate (for example, PM_{10}, $PM_{2.5}$) emissions for the action alternatives are equipment used during the construction of the power line and equipment used to conduct maintenance and make repairs to the transmission line during the life of the project. Possible emissions during construction include fugitive dust from vehicles and equipment traveling on dirt roads and engine exhaust.

Gaseous and Photochemical Emissions
Potential sources of gaseous (for example, NO_2, SO_2, and CO) emissions for the proposed Project, including greenhouse gases, are equipment used during the construction of the power line and equipment used to conduct maintenance and make repairs to the transmission line during the life of the project. Possible emissions could be associated with engine exhaust from equipment traveling to the site and along access roads. These gaseous emissions from vehicles and equipment would include carbon dioxide (CO_2), a greenhouse gas (IPCC 2007). CO_2 would be released both directly from fuel combustion and indirectly as carbon monoxide (CO) that is converted to CO_2 after its release to the atmosphere.

Normal transmission line operations would produce a small amount of ozone from a photo-chemical reaction generated by corona activity. During damp or rainy weather, the ozone produced would be less than 1 part per billion which would be insignificant when compared to natural levels and their fluctuations (DOE 2001).

Air Quality Permitting
Industrial air quality permitting is part of the Montana State Implementation Plan process. DEQ uses air quality permit conditions to help ensure compliance with applicable Montana and National Ambient Air Quality Standards and PSD increments. Work conducted under the proposed Project would be subject to Administrative Rules of Montana (ARM) Title 17, Chapter 8 (Air Quality). Due to the nature of the project (that is, mobile equipment and short duration of construction), no specific permit requirements apply to gaseous emissions. However, construction would be required to comply with fugitive dust provisions under subchapter 3 of the rules, which require precautions to control airborne particulate emissions.

3.11.3 Environmental Impacts

Under all alternatives, no air quality permit or prevention of significant deterioration analysis would be needed.

3.11.3.1 Alternative 1 - No Action

Emissions

Under the No Action alternative, the power line would not be constructed, and emissions and air quality in the area would remain at current levels.

3.11.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Alternatives 2, 3, and 4 would result in an increase in activities that could adversely affect air quality during construction (short term) and during operation and maintenance of the transmission line (long term). For example, construction equipment (earthmoving equipment, cranes, or other equipment) and support vehicles (crew transportation, fueling, or other vehicles) would be used during the construction phase, and lighter equipment (for example, four-wheel-drive pickups) would be used during the operation and maintenance period. The construction phase is anticipated to last approximately 8 months. Operations and maintenance activities would last the life of the project, but impacts would be intermittent (for example, monthly and quarterly) and relatively minor compared to impacts during construction.

Emissions
Emissions from construction equipment and support vehicles would be transient and short term. The duration of the adverse impact would be a function of whether the source activity is associated with construction, or with operations and maintenance activities. The majority of the adverse impact would occur during the project construction phase when there is a relatively larger amount of equipment movement and vehicular traffic. Air quality impacts would include fugitive dust, gaseous emissions from engine operation, and small amounts of ozone produced photo-chemically by corona activity. Fugitive dust would be controlled through dust control measures such as water sprays, limiting the speed of construction equipment, and reseeding the disturbed areas at the end of the construction period. Gaseous emissions would be limited through construction management and scheduling. The levels of ozone produced through normal line operations would be insignificant.

Differences in the rate of emissions between alternatives would be a function of the amount of time project vehicles and equipment are used in the transmission line right-of-way. The amount of time equipment is used depends on several factors including, but not limited to, length of the transmission line for each alternative, overall topography and the presence of difficult or steep terrain, and the number of stream crossings. An alternative characterized by a longer alignment or difficult terrain would result in overall greater emissions. The differences in emissions would be minor and not substantially different between alternatives.

Greenhouse Gas Emissions
The construction of all alternatives would cause the emission of greenhouse gases (GHG), principally from vehicle and equipment operation. GHG emissions were estimated using URBEMIS2007 (Jones & Stokes 2007). This computer program uses estimates of activity rates, emission factors, and equipment loading to estimate the emissions for different equipment used for different construction activities during land development activities. GHG emissions for the proposed Project were roughly

estimated using percentages of time that equipment would likely operate during construction. Conservative assumptions were used and included every piece of construction equipment listed in Table 2.3.3 operating 6 hours every work day for a nine-month period. The assumptions might result in an overestimate as it is unlikely that every piece of construction equipment would be operated at that intensity and the project might be completed in 4 to 6 months. Emission factors and equipment loading within URBEMIS2007 were derived from data developed by the California Air Resource Board. Using these assumptions, the GHG emissions for the construction of the proposed Project would be approximately 690 tons of CO_2 equivalent. The differences in GHG emissions would be minor and not substantially different between alternatives. Compared to the 41 million tons of CO_2 equivalent emitted in Montana during 2005, this project would contribute less than 0.002 percent to that total. Compared to the annual average of 49 billion metric tons of CO_2 equivalent emitted globally, the project would contribute 0.0000013 percent of that total (or about 1.3 millionths of 1 percent).

3.11.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.12 Audible Noise

Noise is defined as unwanted sound. It may be continuous (constant noise and decibel level), steady (constant noise with a fluctuating decibel level), impulsive (having a high peak of short duration), stationary (occurring from a fixed source), intermittent (occurring at the same rate), or transient (occurring at different rate). Noise levels are quantified using units of decibels. The A-weighted scale, reported in A-weighted decibels (dBA), most effectively approximates the human ear's response to sounds.

Audible noise from transmission lines is primarily due to point source corona (crackling and hissing with small amounts of light). It routinely occurs when air is ionized around a gap, burr, irregularity, or some non-insulated component during the conductance of electricity through power lines. Periods of rain, fog, or heavy humidity amplify these corona effects due to the bridging capabilities of electricity and water. Additionally, corona is produced when transmission lines break down over time and their fastener components loosen resulting in an air gap. All corona-based noise sources would be point source locations due to the inconsistencies found along the line.

In addition to audible noise due directly to the transmission line and to other environmental factors, noise can be generated as a result of wind blowing across power lines and power poles when airflow is non-laminar or turbulent (Section 3.12.3).

3.12.1 Analysis Methods

Analysis Area

The analysis area for noise is the proposed and alternative transmission line alignments. Noise estimates were made at the edge of the right-of-way (52.5 feet from the centerline) and 100 feet to either side of the centerline.

Information Sources

The U.S. Department of Housing and Urban Development (HUD) noise level criteria that developments and industrial construction must adapt to are a 65 dBA average day/night noise level (L_{dn}) for exterior environments and 45 dBA L_{dn} for interior home environments (HUD 2001).

The DOE and BPA conducted research to determine the likelihood of receiving complaints related to transmission line audible noise. These noise values can be related to the level during rain that would be exceeded 50 percent of the time over 1 year (L_{50}) (BPA 1982). The foul weather L_{50} values are calculated at 100 feet from the centerline (BPA 1982).

The following probabilities of receiving complaints are based on their expected audible noise level:

- High, Numerous Complaints: over 60 dBA
- Moderate, Some Complaints: 52 to 60 dBA
- Low, No Complaints: less than 52 dBA

MATL used the BPA Corona and Field Effects Program (Version 3.0) to determine the decibel levels from the centerline for the H-frame and monopole structures (MATL 2006b).

3.12.2 Affected Environment

With the exception of the immediate Cut Bank area, the proposed Project alternatives are in a rural, predominantly agricultural area. Sources of background noise to rural residents and occasional visitors to the area include wind, agricultural activity, recreation (primarily hunting), and vehicles traveling the numerous county and state roadways and Interstate 15 in proximity to these alternatives. See **Table 3.12-1** for common noise sources and their noise levels.

TABLE 3.12-1
NOISE LEVELS OF COMMON SOURCES

Sound Source	Sound Pressure Level (dBA)
Air raid siren at 50 feet	120
Maximum levels in audience at rock concerts	110
On platform by passing subway train	100
On sidewalk by passing heavy truck or bus	90
On sidewalk by typical highway	80
On sidewalk by passing automobiles with mufflers	70
Typical urban area background/busy office	60
Typical suburban area background	50
Quiet suburban area at night	40
Typical rural area at night	30
Isolated broadcast studio	20
Audiometric (hearing testing) booth	10
Threshold of hearing (with undamaged hearing)	0

Source: Cowan 1994
dBA = A-weighted decibels.

Generic noise level data from the EPA and the National Transit Institute were used to estimate a typical sound level range for rural residences and agricultural cropland. Typical baseline noise levels in the Project study area likely range from approximately 30 dBA to 48 dBA (EPA 1978).

ARM 17.20.1607(2)(a)(i) states "for electric transmission facilities, the average annual noise levels, as expressed by dBA-L_{dn} would not exceed 50 decibels at the edge of the right-of-way in residential and subdivided areas." The affected landowner may waive this condition. The BPA design criterion for corona-generated audible noise (L_{50}, foul weather) is 50 +/-2 dBA at the edge of the right-of-way (BPA 1982).

Commercial and industrial activities (linear/point facilities) within the analysis area include communication sites (cell towers, microwave facilities), oil and gas development, surface mines (gravel pits), airstrips (public and private), railroads, pipelines and transmission lines, roadways, and military installations (MATL 2006b). Most residential areas (sensitive receptors) throughout the analysis area are approximately ¼ mile or more from the proposed transmission line centerline and alternative alignments. The closest residence is roughly 270 feet from the centerline. Alternative 4 passes through a subdivided, though undeveloped area.

3.12.3 Environmental Impacts

3.12.3.1 Alternative 1 – No Action

There would be no noise impacts related to selection of the No Action alternative.

3.12.3.2 Alternatives 2, 3 and 4 – Action Alternatives

Noise resulting from these alternatives would come from construction, corona effects, and wind.

Construction Impacts

Transmission line construction would require the short-term use of the following kinds of construction equipment: cranes, augers, compressors, air tampers, generators, haul trucks, bulldozers, excavators, concrete equipment, and other equipment. Construction activities would create both intermittent and continuous noises throughout the project at multiple pole locations along the chosen alignment. Intermittent noises would be created by passing trucks, loading and unloading operations, drilling, and other activities. Continuous noises would be created by generators, air tampers, compressors, and drilling operations.

The typical range of noise for earthmoving equipment at 50 feet is from 72 to 96 dBA. Typical ranges of noise for material handling equipment is from 75 to 88 dBA. Noise values 100 feet from the source are 66 to 90 dBA; noise values ¼ mile away are 44 to 68 dBA. Different makes and models of equipment, motor idling speeds, engine maintenance characteristics, and overall muffler performance would result in different dBA values.

The typical ruling span for transmission line support structures would be approximately 800 feet, and the structures would be constructed within the alignment (MATL 2006b). Approximately 10 to 12 transmission line structures would be erected per day. Therefore, any individual location near the transmission line alignment would be affected for approximately one half day during the construction process (VandenBos 2006).

During the construction process, heavy equipment grading, transport, and compacting activities may cause vibrations noticeable to residents within 100 feet. Under Alternative 2, near milepost 73, one residence is located within 20 feet of the 500-foot alignment edge or about 270 feet from the centerline. The Belgian Hill Local Routing Option was developed for this section of Alternative 2 (Section 3.16) and would reduce potential impacts to this residence by moving the alignment about ¼ mile to the west and away from this residence. The peak vibration level would occur during construction activities. Other activities, such as large trucks and equipment motoring over potholes and rocks, would cause slight noticeable vibrations up to 100 feet.

Operational Impacts

Corona

Table 3.12-2 identifies the audible noise values calculated in MATL's permit application when simulating the 230-kV transmission line for both H-frame structures and monopole structures. Standard transmission line building constituents were used, including a rain rate (applicable to audible noise) of 0.14 inch per hour (MATL 2006b). BPA indicated that the rain data typically used in the program are from an average of rainfall throughout the northwest region (Sterns 2006).

Table 3.12-2 shows that for H-frame structures, audible noise levels of 46.23 dBA and 49.56 dBA would be expected at distances of 100 feet and 52.5 feet (edge of right-of-way) from the centerline, respectively. These values would be below the recommended guidelines of 65 dBA exterior noise housing regulations developed by HUD. **Table 3.12-2** indicates that for monopole structures, audible noise levels of 47.13 dBA and 50.0 dBA would be expected at distances of 100 feet from the centerline, and at the edge of the right-of-way, respectively. These values would be below the recommended guidelines of 65 dBA exterior noise housing regulations developed by HUD. At the

nearest residence, roughly 270 feet, noise levels would be below state standards for residential and subdivided areas.

Sound pressure levels calculated based upon the known audible noise level at the edge of the right-of-way for each type of pole are:

- H-frame Double Pole: 56.89 dBA; and,
- Monopole: 55.03 dBA.

These values were based upon a total right-of-way width of 105 feet. The value for monopole structures might be above the right-of-way design criteria of 50 dBA at the edge of the right-of-way in residential and subdivided areas, as specified in ARM 17.20.1607(2)(a)(i), using the existing rainfall event criteria (0.14 inches of rain per hour) (MATL 2006b). The 50 dBA requirement may be waived by the landowner or a wider right-of-way could be obtained.

TABLE 3.12-2
AUDIBLE NOISE EFFECT

Pole Type	Distance from Centerline (feet)	Audible Noise (dBA) (L_{50})
H-frame Double Pole	100	46.23
	52.5	49.56
Monopole	100	47.13
	54	50.00

Notes:

Estimates calculated using Corona and Field Effects Program (Kingery 1991), and based on conductor ground clearance of 21.2 feet (NESC specification). dBA (L_{50}) = decibels (A-weighted) during foul weather, indicated by L_{50}.

No data are available for noise generated by wind.

Wind

Noise can be generated as a result of wind blowing across power lines and power poles when airflow is non-laminar. Only limited research has been conducted to address wind-caused noise due to transmission line placement in urban and rural settings. For example, a wind velocity of approximately 46 miles per hour across a single conventional-style conductor cable resulted in a single-point octave band center frequency of 55 dBA at 100 hertz (Furukawa Review 2002).

Corona effects due to both single pole and H-frame structures are minor based on the actual distance to residential structures near the power lines and the rain data used for the calculations of the safety zone audible noise.

Noise generated based from wind effects of power lines would be minor based on gust-wind (46 mile per hour) noise generated across the transmission lines.

Differences between the alternatives would be based upon the distance from the edge of the right-of-way to the edge of property lines of sensitive receptors. The further away the power line is from the sensitive receptors the quieter the corona-generated, wind based, and construction noises would be. Noise from rain or wind on the transmission line would be below BPA and HUD guidelines for all alternatives, but might exceed the DEQ guideline for a 0.16-mile segment of Alternative 4 in a subdivided area.

3.12.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.13 Socioeconomics

3.13.1 Analysis Method

Analysis Area

The socioeconomic analysis area defined for the Project includes portions of Cascade, Chouteau, Glacier, Pondera, Teton, and Toole counties. This section provides the demographic, social, and economic profiles of each of these counties. These profiles would serve as a basis from which to estimate potential impacts to the socioeconomic condition of the region should the Project be implemented. This section also includes the baseline conditions for evaluating effects of the Project on minority and low income populations in accordance with Executive Order 12898: *Federal Actions to Address Environmental Justice in Minority and Low Income Populations* (February 11, 1994).

Information Sources

The demographic profiles for each county are based on U.S. Census data collected in 2000. Population and growth estimates developed in 2005 by the U.S. Census Bureau are also referenced, although these data are not uniformly available across all counties and towns within the analysis area. As a result, these estimates are generally not used for quantitative analysis, but may be used in certain instances to provide a temporal characterization of a specific locality when appropriate. Additional demographic and economic statistics were compiled from various sources including, but not limited to, the Montana Department of Labor and Industry, Montana Department of Commerce, and the USDA.

Estimates of construction labor force and capital construction costs are based on available information from MATL and figures developed during construction of similar projects.

Information related to public services, including level of service and capacity, was obtained from documents provided by MATL to DEQ in the spring of 2006.

DEQ commissioned an independent report, the *Farming Cost Review* (HydroSolutions Inc. and Fehringer Agricultural Consulting, Inc. July 12, 2007), containing a detailed and critical review of three studies that estimate transmission line structure costs to a 'representative farmer' in the area of Conrad, Montana (**Appendix N**). The Farming Cost Review report estimated the annual costs to farmers of transmission structures in their crop fields.

Methods of Analysis

Direct, indirect, and cumulative impacts to socioeconomic resources were assessed based on reviews of similar projects in the state and other relevant energy industry policy documents and through interviews with individuals whose fields of expertise and experience provide insight relevant to this project. Such sources are referenced as appropriate. Conclusions regarding the impacts to local services that may occur during construction, operation, and maintenance of the project were developed by evaluating the number of employees and the duration of these activities relative to the availability of services and amenities that may be required.

3.13.2 Affected Environment

The discussion below presents information on demographics, economic activity, and local resources for each county in the analysis area.

3.13.2.1 Demographics

The Project analysis area is characterized by large expanses of open, sparsely populated agricultural land. Over 88 percent of agricultural land within the analysis area is cropland, while the remaining land is used for grazing or is under the Federal CRP (MATL 2006b). Like much of the upper Great Plains, market forces triggered in part by advances in farming technology, consolidation of large agricultural tracts into corporate production, and large tracts removed from production under the CRP have contributed to a decline in the populations of Pondera and Toole counties and general stagnation of growth in Teton County since the 1960s. The Montana Department of Labor and Industry (2005) reports that oil and gas account for about 11 percent of Toole County's total wages and even less in the other counties in the analysis area. These factors have recently combined to reduce demand for labor and demand for goods and services related to agricultural and energy production.

Most counties in the analysis area have seen declines in population or have seen their population hold steady. The population of Chouteau County has declined to less than half the number of people today than were there in the early 1900s. However, the 2005 estimated population of Chouteau County is about the same as the reported population in 1990 (U.S. Census Bureau 2005a). Meanwhile, growing tribal population on the Blackfeet Reservation, which makes up the largest population sector in Glacier County, has resulted in a growth rate in that county that has mirrored the state's growth pattern. The state's population grew by almost 13 percent between 1990 and 2000, while the population of Glacier County grew by 9.3 percent during that same period. Growth levels for both the state and Glacier County have tapered since then, to 3.7 percent and 2.3 percent, respectively from 2000 to 2005. Cascade County's population grew steadily, about 0.6 percent annually, throughout most of the 1900s, but tapered off toward the

end of the century and is estimated to have decreased since the 2000 Federal census (U.S. Census Bureau 2000a).

Demographic data for each of the counties within the Project analysis area are shown below and summarized in **Tables 3.13-1** and **3.13-2**.

Cascade County

Cascade County encompasses the southern portion of the Project analysis area and is Montana's third most populous with 79,298 residents (U.S. Census Bureau 2000a). Cascade County covers approximately 2,698 square miles, resulting in an average population density of approximately 30 individuals per square mile. County population levels declined by approximately 2.7 percent between 1970 and 2005 based on estimates provided by the Montana Department of Commerce (2005).

The City of Great Falls is the largest population center (56,622 people based on the 2000 Federal census) in the county and is also the county seat. Other towns in the county include Belt, Black Eagle, Cascade, Fort Shaw, Monarch, Neihart, Simms, Stockett, Sun River, Ulm, and Vaughn. These towns range in size from approximately 70 people to almost 1,000 in Black Eagle, according to U.S. Census Bureau Data (2000a). Additional people also live at Malmstrom Air Force Base is in Cascade County east of Great Falls (Great Falls Development Authority 2005).

Average family size in the county is 2.97 individuals, and the average household size is 2.41 individuals. Most people are homeowners (64.9 percent), while the remainder are renters. Less than 8 percent of housing units are unoccupied.

Chouteau County

Chouteau County encompasses 3,973 square miles. Based on the most recent population estimates of 5,463 individuals (Montana Department of Commerce 2005), the population density is approximately 1.4 persons per square mile. The 2005 population estimates, derived from tax records and birth and death statistics, suggest that the county has potentially lost up to 8.5 percent of its population between 2000 and 2005. This sharp decline balances with a similar increase in population between 1990 and 2000, but overall there has been a relatively steady decline since 1960. Communities in the county include the county seat of Fort Benton, Big Sandy, Box Elder, Carter, Geraldine, Iliad, Loma, and Shonkin. According to the 2000 Federal census, the average family in the county has 3.1 individuals and the average household size is 2.6 individuals. Approximately 69 percent of the county's residents are home owners while the remainder rent. The housing vacancy rate is fairly high at 19.8 percent.

TABLE 3.13-1
DEMOGRAPHIC PROFILES OF COUNTIES WITHIN THE PROJECT ANALYSIS AREA

	Cascade County		Teton County		Chouteau County		Pondera County		Toole County		Glacier County		Percent in Montana
	No.	Percent in County	No.	Percent in County	No.	Percent in County	No.	Percent in County	No.	Percent in County	No.	Percent in County	
Total Population	80,357 79,298 (2001)	--	6,445	--	5,970 5,575 (2004)	--	6,424	--	5,267	--	13,247 13,508 (2004)		
Gender													
Male	39,756	49.5	3,174	49.2	2,997	50.2	3,169	49.3	2,716	51.6	6,553	49.5	49.8
Female	40,601	50.5	3,271	50.8	2,973	49.8	3,255	50.7	2,551	48.4	6,694	50.5	50.2
Age													
15 or Younger	17,163	21.4	1,392	21.6	1,384	23.2	1,503	23.4	1,066	20.2	3,757	28.4	20.6
16 – 24	11,100	13.8	758	11.8	724	12.1	810	12.6	638	12.1	2,067	15.6	14.4
25 – 44	22,558	28.1	1,587	24.6	1,437	24.1	1,594	24.8	1,484	28.2	3,560	26.9	27.2
45 – 64	18,288	22.8	1,635	25.4	1,382	23.1	1,473	22.9	1,242	23.6	2,642	19.9	24.4
65+	11,248	14.0	1,073	16.6	1,043	17.5	1,044	16.3	837	15.9	1,221	9.2	13.4
Average Age	37.2	--	39.3	--	38.7	--	38.0	--	38.8	--	32.5		37.4

Notes:

Source: U.S. Census Bureau, 2005a
-- = Not applicable

TABLE 3.13-2
RACE AND ETHNICITY WITHIN COUNTIES IN THE PROJECT ANALYSIS AREA

Race or Ethnicity	Cascade County		Teton County		Chouteau County		Pondera County		Toole County		Glacier County		Percent in Montana
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
White	72,897	90.7	6,207	96.3	5,015	84.0	5,374	83.7	4,945	93.9	4,693	35.4	90.6
Black or African American	900	1.1	12	0.2	5	0.1	6	0.1	8	0.2	11	0.1	0.3
American Indian and Alaskan Native	3,394	4.2	98	1.5	873	14.6	929	14.5	168	3.2	8,186	61.8	6.2
Asian	652	0.8	6	0.1	14	0.2	9	0.1	16	0.3	9	0.1	0.5
Native Hawaiian and other Pacific Islander	67	0.1	0	0	6	0.1	3	0.1	1	0.1	7	0.1	0.1
Some other race	547	0.7	27	0.4	14	0.2	8	0.1	17	0.3	24	0.2	0.6
Two or more races	1,900	2.4	95	1.5	43	0.7	95	1.5	112	2.1	317	2.4	1.7
Hispanic or Latino	1,949	2.4	73	1.1	40	0.7	54	0.8	61	1.2	159	1.2	2.0

Note:

Percentages may not equal 100 because of rounding and potential duplicate counting for “some other race” and “two or more races.”

Glacier County

After Cascade County, Glacier County is the most populous county within the Project analysis area with an estimated 2005 population of 13,552. Land area is 2,995 square miles, resulting in an average density of 4.5 people per square mile. Unlike the other counties within the analysis area that have experienced a population reduction, Glacier County grew approximately 2.3 percent between 2000 and 2005 (Montana Department of Commerce 2005).

Principal communities include Babb, Browning, Cut Bank, Del Bonita, and Saint Mary. Cut Bank is the county seat and reported an estimated population of 3,155 in 2004 (U.S. Census Bureau 2005a). The Blackfeet Reservation accounts for the majority of the county's area and the majority of the county's population. U.S. Census data indicate that in 2000, the total on-reservation and off-reservation trust land Blackfeet population was estimated to be about 10,100 and the on-reservation population alone was 8,507 (64.2 percent of the census year 2000 population). If all of these individuals resided in Glacier County, Native Americans would account for 76 percent of all people in the county. The Blackfeet tribe also represents a growing population in the county, which is likely the driving force behind the county's growth (about 0.6 percent annually since 1970) (U.S. Census Bureau 2000b).

The average family size is 3.6 individuals and the average household size is 3 individuals. About 62 percent of the residents are homeowners; the remainder rent. About 18 percent of the county's housing inventory is vacant.

Pondera County

Pondera County encompasses approximately 1,625 square miles and had an estimated population of 6,087 people in 2005 (Montana Department of Commerce 2005), resulting in an average population density of about 3.7 people per square mile. The 2005 population estimate indicates that the population of the county has declined by 5.2 percent since 2000. Historic population records indicate an annual decline of 0.2 percent since 1960.

Principal communities in the county include Conrad, Heart Butte, and Valier. Conrad is the county seat.

The average family size in the county is 3.2 individuals and the average household has approximately 2.6 individuals. Most of the county's residents own their principal residence (70.5 percent), while the remainder are renters.

Teton County

Teton County encompasses an area of 2,272.6 square miles. The total population as of 2000 was 6,445 persons, yielding a population density of approximately 2.8 persons per square mile. County population levels have been generally stagnant since about 1980, and recent population estimates for 2005 (Montana Department of Commerce 2005) indicate a 3.2 percent decline since 2000. Choteau is the county seat and is home to approximately 28 percent of the county's residents. The remainder of the population is distributed throughout unincorporated county lands and small towns and communities, the largest of which is Fairfield with a 2004 estimated population of 641 (U.S. Census Bureau 2005a).

Average family size in Teton County is 3.1 individuals and the average household size is 2.5 individuals. Most people in the county own their home (75.4 percent) while the remainder rent. Approximately 12.8 percent of housing units are unoccupied.

Toole County

The total estimated population of Toole County in 2005 was 5,031 (Montana Department of Commerce 2005 and Montana Department of Labor and Industry 2005). Land area of the county is 1,911 square miles, yielding an average population density of 2.6 individuals per square mile. Communities include the county seat of Shelby, which is also the most populous town in the county with approximately 3,304 residents in 2004 (U.S. Census Bureau 2005a), and Kevin, Sunburst, and Sweetgrass.

The average family has 3.1 individuals, and the average household size is 2.5 individuals. Approximately 71.2 percent are homeowners. About 14.7 percent of the houses in the county are vacant.

3.13.2.2 Economic Activity

Economic activity in the analysis area ranges from heavy reliance on agriculture to growing development in the education, health, and social services sectors. In MATL's March 2006 response to DEQ comments, employment and labor trend data compiled from the U.S. Department of Labor, Bureau of Statistics were presented for each of the counties in the analysis area (MATL 2006b). These data were compiled for the last 5 years, documenting the total labor force available, total employment, total unemployment, and the resulting unemployment rate (**Table 3.13-3**). In general, unemployment rates have been fairly steady over the last 5 years, with three counties (Cascade, Teton, and Toole) seeing a small decline (0.5 percent or more) in total unemployment. Higher unemployment rates in Glacier County are attributable to the disproportionately higher unemployment rate on the Blackfeet Indian Reservation, which in 2005 was reported to be 69 percent of the available tribal workforce (Bureau of

Indian Affairs 2005). The unemployment rate for the county as a whole, which is the highest of the analysis area counties, is reported at 8 percent, though this has fluctuated over the last 5 years from a high of 8.2 percent to a low of 6.9 percent. Pondera and Chouteau counties saw a slight increase (less than 1 percent) in unemployment over the same period. (MATL 2006b).

TABLE 3.13-3
EMPLOYMENT AND DATA TRENDS BY COUNTY, 2000 – 2005[a]

Year	Labor Force	Employed	Unemployed	Unemployment Rate (%)
Cascade County				
2000	38,287	36,386	1,901	5.0
2001	38,419	36,719	1,700	4.4
2002	38,411	36,776	1,635	4.3
2003	38,558	36,992	1,636	4.2
2004	39,209	37,566	1,643	4.2
2005[b]	40,474	38,697	1,777	4.4
Chouteau County				
2000	2,799	2,698	101	3.6
2001	2,723	2,629	94	3.5
2002	2,474	2,387	87	3.5
2003	2,518	2,437	81	3.2
2004	2,633	2,454	88	3.3
2005[b]	2,694	2,590	104	3.9
Glacier County				
2000	5,715	5,248	467	8.2
2001	5,775	5,348	427	7.4
2002	5,585	5,199	386	6.9
2003	5,750	5,315	435	7.6
2004	5,942	5,466	476	8.0
2005[b]	6,105	5,614	491	8.0
Pondera County				
2000	2,976	2,836	140	4.7
2001	2,892	2,771	121	4.2
2002	2,745	2,630	124	4.5
2003	2,771	2,641	130	4.7
2004	2,715	2,568	147	5.4
2005[b]	2,764	2,612	152	5.5
Teton County				
2000	2,974	2,846	128	4.3
2001	2,926	2,815	111	3.8
2002	2,906	2,796	110	3.8
2003	2,949	2,840	109	3.7
2004	3,001	2,885	116	3.9
2005[b]	3,047	2,931	116	3.8

TABLE 3.13-3 EMPLOYMENT AND DATA TRENDS BY COUNTY, 2000 – 2005[a]				
Year	**Labor Force**	**Employed**	**Unemployed**	**Unemployment Rate (%)**
Toole County				
2000	2,523	2,422	101	4.0
2001	2,429	2,346	83	3.4
2002	2,348	2,266	82	3.5
2003	2,538	2,453	85	3.3
2004	2,586	2,500	86	3.3
2005[b]	2,661	2,568	93	3.5

Notes:
a Reflects 2000 Census-based geography, new model controls, 2000 Census inputs.
b Average through Nov. 2005
Source: U.S. Department of Labor, Bureau of Labor Statistics, 2005.

Countywide earnings data by industry sector were available for 2001 through 2004 (**Tables 3.13-4** through **3.13-9**). In general, the data for each county indicated an increase in total wages across most sectors. However, Cascade County experienced a marked decrease (almost 50 percent) in total wages within the natural resources and mining sector (agriculture, forestry, and mining) between 2001 and 2004. The decrease is likely attributable to growth in other, more urban-related sectors such as the information and health, education, and social services sectors. Teton County experienced a substantial decline in wages associated with the manufacturing industry sector (40 percent) over the same time period but saw large increases in retail trade (83 percent) and in the professional, scientific, management, administrative, and waste management industry sectors (almost 400 percent). Elsewhere, wages in the natural resources and mining sectors generally held steady or increased. Large increases in wages in this sector were realized in Glacier County between 2002 and 2004 (approximately 91 percent), where oil and gas exploration, as a subsector of the mining industry, increased by 150 percent from 2001 to 2004 (Montana Department of Commerce 2006).

TABLE 3.13-4
INDUSTRY SECTOR EARNINGS TRENDS – CASCADE COUNTY

Industry	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	2,815	-49.55
Construction	63,118	+21
Manufacturing	32,166	+0.3
Wholesale trade	51,191	+18
Retail trade	103,637	+6.7
Transportation and warehousing, and utilities	34,264	+4.1
Information	23,985	+23.7
Finance, insurance, real estate, and rental and leasing	89,744	+19.4
Professional, scientific, management, administrative, and waste management services	74,368	+17.5
Educational, health and social services	224,140	+16.7
Arts, entertainment, recreation, accommodation and food services	50,432	+16.8
Other services (except public administration)	23,672	+14.5
Public administration	67,345	+21

Source - US Department of Labor, Bureau of Labor Statistics 2005.

TABLE 3.13-5
INDUSTRY SECTOR EARNINGS TRENDS – TETON COUNTY

Industry	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	1,263	+4.12
Construction	980	+68.38
Manufacturing	289	-40.17
Wholesale trade	4,459	+29.28
Retail trade	3,333	+83.23
Transportation and warehousing, and utilities	3,632	+21.55
Information	6,961	+15.38
Finance, insurance, real estate, and rental and leasing	2,698	+39.1
Professional, scientific, management, administrative, and waste management services	1,292	+396
Educational, health and social services	9,927	+22.4
Arts, entertainment, recreation, accommodation and food services	1,209	+3.6
Other services (except public administration)	483	-13.6
Public administration	3,242	+3

Source - US Department of Labor, Bureau of Labor Statistics 2005.

TABLE 3.13-6
INDUSTRY SECTOR EARNINGS TRENDS – CHOUTEAU COUNTY

Industry	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	1,765	+23.0
Construction	433	+42.43
Manufacturing	444	-5.7
Wholesale trade	1,678	+71.4
Retail trade	2,837	+11.65
Transportation and warehousing, and utilities	793	+25.28
Information	N/A	N/A
Finance, insurance, real estate, and rental and leasing	864	-42.32
Professional, scientific, management, administrative, and waste management services	N/A	N/A
Educational, health and social services	9,192	+5.62
Arts, entertainment, recreation, accommodation and food services	1,182	+32.51
Other services (except public administration)	233	+29.44
Public administration	2,769	+12.84

Source - US Department of Labor, Bureau of Labor Statistics 2005.

N/A – Not Disclosed: Data do not meet Bureau of Labor Statistics or State agency disclosure standards

TABLE 3.13-7
INDUSTRY SECTOR EARNINGS TRENDS – PONDERA COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	748	-24.67
Construction	9,193	+14.88
Manufacturing	1,021	-23.7
Wholesale trade	3,117	+9.7
Retail trade	4,016	+15.43
Transportation and warehousing, and utilities	6,324	+9.03
Information	449	+39.44
Finance, insurance, real estate, and rental and leasing	1,908	+1.76
Professional, scientific, management, administrative, and waste management services	1,497	+6.4
Educational, health and social services	13,022	+4.48
Arts, entertainment, recreation, accommodation and food services	1,180	+21.65
Other services (except public administration)	523	-2.8
Public administration	847	+5.35

Source - US Department of Labor, Bureau of Labor Statistics 2005

TABLE 3.13-8
INDUSTRY SECTOR EARNINGS TRENDS – TOOLE COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	4,287	+19.82
Construction	833	+33.28
Manufacturing	424	-6.2
Wholesale trade	2,759[a]	N/A
Retail trade	3,652	+33
Transportation and warehousing, and utilities	473	+1.94
Information	1,449	+54.3
Finance, insurance, real estate, and rental and leasing	2,087	+29.55
Professional, scientific, management, administrative, and waste management services	5,343	+27.8
Educational, health and social services	10,370	+20.34
Arts, entertainment, recreation, accommodation and food services	3,304	+47.3
Other services (except public administration)	373	-3.1
Public administration	8,130	+228.4

Source - US Department of Labor Bureau of Statistics 2005.
[a] 2002 Data, No Data Available for 2004
N/A– Not Available: comparison data do not meet Bureau of Labor Statistics or State agency disclosure standards

TABLE 3.13-9
INDUSTRY SECTOR EARNINGS TRENDS – GLACIER COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	4,939	+90.62a
Construction	2,726	-5.05
Manufacturing	583	-15.87a
Wholesale trade	3,056	+29.66
Retail trade	8,102	+22.39
Transportation and warehousing, and utilities	3,081	-6.8
Information	309	+6.19
Finance, insurance, real estate, and rental and leasing	2,158	+13.04
Professional, scientific, management, administrative, and waste management services	2,195	+21.2
Educational, health and social services	27,113	+28.52
Arts, entertainment, recreation, accommodation and food services	12,640	+1.93
Other services (except public administration)	1,311	-13.8
Public administration	36,200	+11.47

Source - US Department of Labor Bureau of Statistics 2005.
a 2002 Data, No Comparison Data Available for 2001

Per capita personal income has generally increased for all of the counties in the analysis area (U.S. Department of Commerce 2006). Per capita income is the average individual income from all sources, and is calculated by dividing total income by the total population. For counties dependent on agriculture, increases or decreases in per capita income are typically attributable to the quantity and value of crops or livestock produced. For example, per capita income increased between 2001 and 2004 as a result of bumper crops of winter wheat and barley, particularly in Chouteau and Toole counties (**Table 3.13-10**).

TABLE 3.13-10
PER CAPITA PERSONAL INCOME TRENDS

County	Per Capita Personal Income – 2004	Percent Change in Per Capita Personal Income, 2003 - 2004
Cascade	$29,231	+5.9
Chouteau	$27,303	+13.6
Glacier	$20,637	+7.6
Pondera	$23,709	+4
Teton	$26,158	+6.6
Toole	$28,100	+12.3

Notes:
Source: Sonoran Institute 2004.

Additional details regarding the social and economic activities in each of the counties in the analysis area are summarized for each county below.

Cascade County

The economy of Cascade County is heavily influenced by the commerce and trade activities centered in and around Great Falls, Montana's second largest city. This area provides the goods and services and other amenities drawn upon throughout the region. The largest private economic sector in the county is health care and social assistance, which accounts for nearly 24 percent of non-government employment. Another 14.2 percent of the labor force works in the retail trades. Malmstrom Air Force Base, just to the east of Great Falls, is home to several thousand military personnel and their families and employs about 4.9 percent of the county's population (approximately 3,000 people). According to the USDA, there were 1,037 farms in Cascade County in 2002, a slight drop (1.2 percent) since the 1997 agricultural census (USDA 2004).

Median household income in Cascade County in 2003 was $34,471, or 100.1 percent of the state's median household income (USDA Bureau of Labor Statistics 2005). Approximately 13.9 percent of the county's residents lived below the poverty level during 2003 (U.S. Census Bureau estimates 2005b).

Property tax revenues made up over 48 percent of all county revenues in fiscal year 2004-2005. Public safety was the largest segment draw on the county budget. For fiscal year 2004-2005, Cascade County appropriated $2,356,823 to its road fund, $39,451 to its rural fire fund, $165,088 to its emergency medical fund, and $6,811,144 to the public safety fund (MATL 2006b).

Chouteau County

The largest economic sector in Chouteau County is agriculture, accounting for almost 33 percent of the industries within the county and occupying over 90 percent of the county land area (USDA 2004). Still, the number of farms decreased by about 3.9 percent between 1997 and 2002 (USDA 2004). Education, health and social services combined constitute the next largest industry sector, followed by retail trades.

Chouteau County received more Federal farm subsidies than any other Montana county in 2003—over $33 million (Montana Department of Labor and Industry 2006). These subsidies reflect payments made for CRP lands, Loan Deficiency Payments, Crop Disaster Program, and the Livestock Compensation Program and reflected 20.6 to 32 percent of the reported per capita income in Chouteau County in 2003 (approximately $24,030). In 2004, the per capita income was $27,303, an increase of 23.6 percent from 2002 and 13.6 percent over 2003. Median household income in 2003 was $28,646, only 83.2 percent of the state average (USDA 2006). In 2003, 15 percent of the county population was estimated to be living in poverty (U.S. Census Bureau 2005b).

MATL provided DEQ with tables detailing county revenues and expenditures for the fiscal year ending June 2005 in its March 2006 submittal to the agency (MATL 2006b). In general, property tax made up nearly 50 percent of county revenues in fiscal year 2004-2005. Public works was the largest segment draw on the county budget. For fiscal year 2004-2005, Chouteau County appropriated $1,324,911 to its road fund.

Glacier County

Glacier County is home to the Blackfeet Indian Reservation and also encompasses the eastern portion of Glacier National Park. The presence of the park provides an important tourism draw to the area, which creates a higher degree of economic activity in the retail trade, accommodation and food services, and entertainment and recreation industry sectors. These sectors combined account for more than half the total private workforce, although government jobs, mostly tribal related, provide the greatest amount of employment (Montana Department of Labor and Industry 2005). Health care and social services are also a major industry sector (U.S. Census Bureau 2006), as is the oil and gas industry, which experienced a 150 percent increase in earnings from 2001 to 2004 (Montana Department of Commerce 2006). According to the USDA's 2002

census, 85.8 percent of the land in the county is in farms. The total number of farms decreased slightly from 493 in 1997 to 472 in 2002.

County per capita personal income in 2004 was $20,637, an increase of 13.4 percent from 2002 (U.S. Department of Commerce 2006). Median household income in 2003 was $27,117 which was only 78.7 percent of the state average (USDA 2006). According to U.S. Census Bureau estimates, in 2003 25.6 percent of Glacier County's population was living in poverty. The only other county in the state with a higher poverty rate was Roosevelt County (U.S. Census Bureau 2005b).

Property tax made up nearly 38 percent of county revenues in fiscal year 2004-2005. Largest segment draws on the county budget include public safety, public works, and general government expenditures; all tapping between 28 to 30 percent of revenue. For fiscal year 2004-2005, Glacier County appropriated $926,559 to its road department fund, $1,124 to the Cut Bank Fire Department fund, and $495,242 to the ambulance fund (MATL 2006b).

Pondera County

Economic data from 2004 indicate that within Pondera County the largest economic sector was education, health, and social services, which employed 302 individuals that year. A report on the economic impact of the health sector in Pondera County (Oklahoma State University 2005) indicated that the bulk of the health care workers (244) are employed by Pondera Medical Center. Retail trade was also a major sector, with approximately 280 employees (U.S. Census Bureau 2006). Agriculture was also a large industry in the county with 20.2 percent of individuals employed in that sector. Nearly 75,000 acres in Pondera County are irrigated cropland and 86.6 percent of the land is in farms (USDA 2004). Principal crops include winter wheat and barley.

In 2004, the county per capita personal income was $23,709, an 8.4 percent increase since 2002 (U.S. Department of Commerce 2006). Median household income was reported to be $29,362 in 2003, or 85.2 percent of the state average (USDA 2006). In 2003, 17.6 percent of county population was estimated to be living in poverty (U.S. Census Bureau 2005b).

Property tax made up nearly 50 percent of county revenues in fiscal year 2004-2005. Largest segment draws on the county budget include public works and general government expenditures. For fiscal year 2004-2005, Pondera County appropriated $925,355 to its road fund and $20,891 to its rural fire district fund (MATL 2006b).

Teton County

Based on the U.S. Census Bureau's 2004 county business patterns study, retail trade establishments employ the largest percentage of the workforce in the county, followed by health care and social assistances (U.S. Census Bureau 2006). However, these statistics do not take into account those establishments without employee identification numbers, which may include some farms. Of all the counties in the Project area, Teton County is the only one to see an increase in the number of farms between 1997 and 2002 (from 625 to 700, or 12.5 percent increase). This area of Montana is known for its high quality winter wheat and barley production. Much of the barley is grown under contract with Anheuser-Busch. Another prominent contractor in the area is General Mills (Choteau Acantha 2004).

Per capita personal income in 2004 was $26,158. Median household income in 2003 was $30,844, or 89.5 percent of the state average (USDA 2006). During the same year, 13.7 percent of Teton County's population was living in poverty according to U.S. Census Bureau (2005b) estimates.

Taxes and assessments (including property tax) made up nearly 48 percent of county revenues in fiscal year ending 2004. Public safety was the largest segment draw on the county budget. For fiscal year 2004-2005, Teton County appropriated $787,037 to its road fund, $64,893 to its Fire Fee District, $15,000 to its rural fire fund, and $3,245 to the Choteau fire fund (MATL 2006b).

Toole County

The largest economic sector in Toole County was education, health, and social services. Retail trades was second, followed by accommodations and food service. Almost 90 percent of the county is farmland. Of the 405 farms in the county in 2002, 200 were oilseed and grain farms and 110 grew sugar beets, hay, and other types of crops. The remaining farms and ranches were primarily dedicated to beef cattle ranching and other animal production. Oil and gas extraction is also a major economic activity in the county, with about 11 percent of total private wages. The county is also home to Sweetgrass, the busiest port of entry on the Alaska-Canada Highway between eastern Washington and central North Dakota (Montana Department of Labor and Industry 2005).

Per capita personal income in 2004 was $28,100, an increase of 23 percent from 2002 (U.S. Department of Commerce 2006). Median household income in 2003 was $29,840 which was 86.6 percent of the state average (USDA 2006). According to the U.S. Census Bureau (2005b), an estimated 14.1 percent of the county population was living in poverty in 2003.

Taxes and assessments (including property tax) made up about 39 percent of Toole County revenues in fiscal year 2004-2005, however intergovernmental revenues (state/Federal) made up over 55 percent of county revenue that fiscal year. Largest segment draws on the county budget include public health and general government expenditures. For fiscal year 2004-2005, the county appropriated $910,275 to its road fund and $88,000 to its ambulance fund (MATL 2006b).

3.13.2.3 Local Resources

Local resources that were examined include emergency and medical services, law enforcement, and fire response. Resources such as housing and schools were not examined in detail because the relatively low number of employees expected through the duration of Project construction, and the relatively short duration of activities occurring in a given locale make it unlikely that these resources would incur any measurable direct impacts. Service and retail providers that would experience impacts as a result of the construction and operation of the proposed Project or alternatives include lodging, restaurants, and gas stations. The principal communities that likely would serve project workers include Great Falls (Cascade County), Conrad (Pondera County), Cut Bank (Glacier County), and Shelby (Toole County). Each of these towns has lodging and dining options as well as grocers and gas stations.

Cascade County

Emergency and Medical Services: Benefis Healthcare provides care to approximately 225,000 people in a service area covering 15 counties in north-central Montana. Benefis Healthcare offers a full range of medical services, including a Level II Trauma Center. Facilities include 502 beds at its two campuses. Benefis also operates the Williams-Ario Regional Emergency and Trauma Center in Great Falls. This facility provides 19 emergency examination rooms and an additional seven non-urgent care rooms. The emergency department is staffed with nine board-certified or -eligible physicians. The Fast Track program has four family nurse practitioners who treat non-urgent patients.

Flight services are available through Mercy Flight, which operates both helicopters and fixed-wing aircraft. Mercy Flight crews respond to bring patients from isolated areas or accident scenes to the Regional Emergency Center.

Law Enforcement: The Cascade County Sheriff's Office covers all areas within the county, with the exception of Great Falls. The Sheriff's office has 34 officers. The City of Great Falls is covered by the City Police Department, with 82 officers and 65 patrol and support vehicles.

Fire Response: The Great Falls Fire Rescue consists of 65 uniformed firefighters, in addition to the Fire Chief, Assistant Chief, and several other staff. All suppression firefighters are certified EMTs, and 19 are also certified as paramedics. There are four stations with a total of six 1,250-gallon-per-minute fire engines, a water tender, a snorkel truck, a rescue vehicle, and hazardous materials response equipment. Additional fire services in Cascade County include:

- Sun River Fire Service Area
- Vaughn Volunteer Fire Department
- Black Eagle Volunteer Fire Department
- Malmstrom AFB Fire Department
- Gore Hill Volunteer Fire Department
- Cascade Volunteer Fire Department

Chouteau County

Emergency and Medical Services: The Missouri River Medical Center (MRMC) in Fort Benton provides a seven-bed acute care hospital, emergency room, laboratory, and radiology department. The MRMC Emergency room is available 24 hours a day, 7 days a week, and is staffed by a registered nurse with a physician on call. MRMC coordinates emergency services with Memorial Ambulance, Geraldine Ambulance, Benefis Healthcare, Mercy Flight, and Chouteau County.

Law Enforcement: The Chouteau County Sheriff's Office covers the towns of Big Sandy, Loma, Carter, Highwood, Square Butte, Geraldine, and all rural areas in Chouteau County. Fort Benton has its own city police department. The county sheriff's office has a force of nine full time officers and a reserve force of eight and is responsible for the investigation and prevention of crime, coroner duties, fire warden, civil process, bailiff, search and rescue, and emergency services response. The department has eight patrol cars and two suburbans (MATL 2006b).

Fire Response: There are eight volunteer fire departments in Chouteau County located in Fort Benton, Big Sandy, Geraldine, Highwood, Loma, Carter, Kness, and Elim. There are also five volunteer quick response units on call for emergency and fire situations, and three ambulance services in Fort Benton, Big Sandy, and Geraldine (MATL 2006b).

Glacier County

Emergency and Medical Services: Northern Rockies Medical Center in Cut Bank is a full service medical center with a 25-bed hospital, two fulltime physicians, one nurse practitioner, and several registered nurses. There are three ambulances in the county (MATL 2006b).

Law Enforcement: The Glacier County Sheriff's Office covers all areas in the county, though Cut Bank has its own police department as well. Glacier County Sheriff's Office has 12 officers and seven reserves, and has 12 patrol vehicles. The City of Cut Bank Police Department employs six officers and has five vehicles available for patrol.

Fire Response: Cut Bank Volunteer Fire Department serves the City of Cut Bank and eastern Glacier County. The department has 25 volunteer firefighters, two city trucks, three rural trucks, and a rescue truck. The Cut Bank department also provides equipment and training to the Del Bonita Volunteer Fire Company. There are three rural trucks at this location, and a variable number of volunteer firefighters. Other departments in the county include the Browning Volunteer Fire Department and the Babb Volunteer Fire Department (MATL 2006b).

Pondera County

Emergency and Medical Services: Pondera Medical Center, in Conrad, is a 20-bed acute care facility with a full range of services. There are five local physicians and five allied staff at the facility along with a variety of visiting specialists. Pondera Medical Center provides 24-hour emergency room coverage by a physician assistant and nurse practitioner, with physician backup. Pondera County Ambulance, staffed with emergency medical technicians, serves the Pondera County area with round-the-clock emergency services. The ambulance also provides transportation services for patients to other facilities (MATL 2006b).

Law Enforcement: The Pondera County Sheriff's Office covers all areas of the county with the exception of Conrad and reservation lands. The sheriff's office has eight fulltime officers and eight patrol vehicles. Conrad is covered by the City Police Department, with a staff of five and two vehicles available for patrol. The Bureau of Indian Affairs handles law enforcement on reservation lands in the western part of the county.

Fire Response: There are four fire departments in Pondera County. These are the Brady Volunteer Fire Department, the Conrad Volunteer Fire Department, the Dupuyer Volunteer Fire Department, and the Valier Volunteer Fire Department. They have a total of 79 volunteer firefighters and 16 trucks. There is also one department located in Heart Butte that falls under the Bureau of Indian Affairs.

Teton County

Emergency and Medical Services: Teton Medical Center is a 10-bed critical access hospital and 36-bed extended care facility located in Choteau. The hospital provides 24-hour emergency services, with two rooms staffed by physicians, physician assistants, and nurses (MATL 2006b).

Law Enforcement: Teton County Sheriff's Office covers the entire county. The office has a force of nine, including the sheriff and under sheriff, and has nine patrol vehicles.

Fire Response: There are five fire departments in Teton County – the Choteau Volunteer Fire Department, the Dutton Rural Fire Department, the Fairfield Rural Fire District, the Pendroy Volunteer Fire Company, and the Power Volunteer Fire Company (MATL 2006b).

Toole County

Emergency and Medical Services: Marias Medical Center in Shelby is a combined 20-bed acute care hospital with nursery, maternity rooms, intensive care and critical care units, and a 68-bed skilled nursing facility. The emergency room has a physician on call 24 hours a day, and a surgeon and anesthetist are available, as needed. The facility has 15 RNs on staff. Four ambulances serve the county, including one housed in Sunburst (35 miles north of Shelby). There is a helipad at the hospital, and transfers to fixed-wing aircraft can be made at the airport just north of Shelby.

Law Enforcement: Toole County Sheriff's Office covers the entire county, including Shelby. The office has a force of 12 including the sheriff, and has six patrol vehicles.

Fire Response: There are two volunteer fire departments in Toole County. The Shelby Volunteer Fire Department provides fire services for Shelby and southern Toole County and has 21 firefighters, three city trucks, and five rural trucks available. There is also a volunteer fire department in Sunburst that serves northern Toole County. The department has 21 firefighters, two local trucks, one city truck, one water tender, and five rural trucks.

3.13.3 Environmental Impacts

The socioeconomic impacts of Alternative 2 and the other action alternatives can be divided into (1) those that are an immediate result of project construction such as an influx of workers to the area to complete the project; (2) those related to operation of the proposed Project or alternatives, such as impediments to property owners' ability to make full and unimpeded economic use of their land and the addition of taxable property to state and county budgets; (3) those that would arise as a direct result of the presence of the proposed Project; and (4) those related to increased availability of power transmission options. Each of these types of effects is discussed in more detail below. Consequences more directly related to the changes that would occur to land use are discussed in more detail in Section 3.1.

3.13.3.1 Alternative 1 - No Action

Under the No Action alternative, economic and social activity in the area would continue as it has and follow currently expected trends. Neither the proposed Project nor any of the action alternatives would be constructed. Under this scenario, benefits to the counties in the analysis area from project-generated property taxes (**Table 3.13-18**), the Wholesale Electricity Tax, and any benefits from the increased utilization of local goods and services as a result of the project would not occur. The employment opportunities that would be created during construction of the project would also not occur. Wind generation projects that might develop as a result of the construction of additional transmission capacity (also described in Section 3.13.3.2) would not be built in the immediate future; revenue to the counties from these projects would not materialize, nor would the associated temporary and permanent employment opportunities. Thus, the economic benefits of MATL and associated wind farms would not occur.

Under the No Action alternative, the social and economic situations of local landowners would continue as they have and follow currently expected trends. Costs from the MATL line to farmers and other landowners would not occur because these landowners would be able to use their land without incurring the inefficiencies caused by working around transmission structures. Conversely, local landowners would not receive a one-time easement payment for land they own in the transmission line right-of-way, nor would they receive any annual compensation from MATL for having to farm around those structures. Landowners would also not receive the recently approved 100% property tax exemption for land owned within 660 feet of the centerline of a new transmission line.

3.13.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Under the Proposed Project, the project owners would benefit from any future profits earned from transporting electricity on the line or bear costs from any future losses. Shareholders in the company would also profit from any returns on their investment (e.g. shareholders earning dividends and capital gains from stock options in the company) or bear costs from any future losses. It is likely that most shareholders in the company would not be from Montana. Wind power developers would also profit to the extent that the line would allow them to build wind farms. Montana landowners who receive payments from turbines on their land would stand to gain an additional source of annual income from those turbines as a result of the line being built. Landowners with the line on their property would incur costs from the structures on their land and benefits from compensation payments, and tax exemptions.

Construction Phase: Approximately 55 employees would be needed to complete the Project within a 6-month timeframe (MATL 2006b). The local impact of construction activity would vary depending on whether the local labor pool is used or whether workers come from out of the region. An unknown number of those workers would potentially be locally hired, but some jobs may require skills that are unavailable in the local labor pool (MATL 2006b). Where local workers are hired, there would be a small but positive effect to local area personal income figures for the duration of construction and potentially a small reduction in unemployment in the analysis area's counties. According to MATL (2006b), about two-thirds of the hired construction workers would earn between $20 and $26 per hour and the project would provide in excess of 200,000 person-hours of construction employment. Assuming an average pre-tax hourly wage of $23, construction employment alone may conservatively generate $4.6 million in income over the construction time period of approximately 6 months. Earned wages from local workers would also be a source of income tax to state and Federal taxing authorities, although this revenue may simply represent a replacement of similar revenue amounts generated by jobs previously held by those same workers and other project contractors.

Workers would be dispersed along the chosen alignment, rather than all concentrated in one area at one time (Section 2.3). For example, some workers would concentrate on digging and setting poles, while other crews would follow at a later time to string line. Similarly, line installation would also be dispersed. Secondary, or induced positive impacts would be created by the increase in use of the local retail business and service industries by workers. However, given the few workers and dispersed nature of the construction activities associated with the proposed Project and action alternatives, it is likely that the secondary beneficial impacts in any given town along the alignment would be small and short term.

No direct impacts to the regional demographics are expected to occur as a result of the project since some of the workers are expected to already be residing in the area and others would be dispersed over the breadth of the Project area. The dispersed nature of the construction phase of the project also means that local goods and services such as lodging facilities, restaurants, and gas stations would not be over-used to the degree that additional employment or additional facilities would be required to maintain pre-Project levels of service. Interviews conducted by MATL representatives with other community service workers at hospitals and law enforcement agencies also indicated that these types of services would not be unduly taxed by the influx of workers to the region (MATL 2006b). In addition, construction costs of the line would ultimately be paid for by the energy shippers, not by Montana rate payers.

As described more fully in Section 3.1, the construction phase of the action alternatives would require limited access road development to reach otherwise inaccessible tower locations, overland driving to geographically accessible locations, and other activities

related to structure placement. Temporary disruptions would occur to landowners, including brief inaccessibility to portions of their property in the right-of-way. Economic costs associated with such disruptions would be minimal due to the brief time required at each construction location.

Operation Phase: Portions of the proposed Project would be constructed on easements crossing irrigated and non-irrigated cropland and rangeland. Disruptions to farming practices would be expected to occur, including:

- Decreases in farming efficiency caused by pole placement in fields;
- Small, long-term decreases in farming acreage where the structures are located;
- Increases in farming costs and herbicide and pesticide spraying costs;
- Reduced coverage of aerial herbicide and pesticide resulting in increased weed pressure; and
- The potential for reduced property values on farmland.

Because action alternatives are located in areas accessible by overland driving, few permanent access roads would be needed. However, where repeated compaction by heavy equipment occurs on fine-grained soils, previously productive cropland may require additional labor measures (such as tilling) to restore crop productivity to pre-construction levels.

Disruptions such as these would result in external costs associated to landowners and farm operators with the creation of non-productive farming areas; extra use of diesel, fertilizer, seed, pesticides and herbicides; modifications to DGPS networks infrastructure (that is, repeater installation/modification and tractor modifications); additional stress and increased flight time during aerial applications of fertilizer and pesticides due to the presence of tower and conductor obstructions; and real or perceived impacts to property values (MATL 2006b). Few recent studies are available that quantify the cost of these types of infringements to property owners with agreed-upon accuracy; however, a study conducted by Ontario Hydro in 1979 showed that the greatest financial effect of the towers comes as a result of the creation of a non-productive area, followed by time loss, crop damage, and material loss (Scott 1980). While the Ontario Hydro study attempted to quantify these losses, the values in the study are in terms of the averages between 1974 dollars for western Ontario and 1975 values for eastern Ontario. Therefore, it would be difficult to convert these monetary values to today's U.S. dollar value for the specific types of farm and ranchland uses in northern Montana.

To support the assessment of costs to farmers and landowners from the MATL line, DEQ obtained an independent analysis of costs for farming around transmission line structures (HydroSolutions and Fehringer 2007). The analysis estimated costs to a "representative farmer" in the Conrad, Montana, area. The analysis (**Appendix N**) considered economic costs such as those from land being taken out of production for transmission line structures; extra labor and extra consumption of fuel, fertilizer, pesticides, and other inputs resulting from farming around transmission line structures; and crop losses resulting from farming around structures. It did not consider possible costs related to additional time, stress, or safety issues associated with the transmission line.

The 2007 analysis was updated in June 2008 (HydroSolutions and Fehringer 2008) to reflect substantial increases in farming input costs and crop prices that occurred in late 2007 and early 2008, and MATL compensation adjustments requested in comments from farmers. The assumptions of the analysis were selected to ensure that farmer costs would not be underestimated. Thus, the estimated farming costs represent the upper end of the range of additional costs farmers would face from transmission structures. Values from both the 2007 and 2008 studies are presented here to provide an indication of the range of potential costs. Because farming input costs and crop prices were at an all-time high in the summer of 2008, the upper end of the cost range given is unlikely to persist throughout the period of line operation.

MATL has committed to provide compensation for the impact to farmers by making pole payments for each structure and annual payments to offset the increased cost of farming around the structures. The pole payments would go to all landowners, not just farmers. These payments also provide a new, predictable, and consistent revenue stream to landowners, some or all of which may be used to offset additional costs created by the transmission structures.

Farmer Costs from Transmission Structures

The average annual costs to farmers per transmission structure from the 2007 and 2008 HydroSolutions studies are shown in **Table 3.13-11.** Annual costs are estimated for different types of structures and their locations within fields.

TABLE 3.13-11
ANNUAL COSTS OF FARMING AROUND TRANSMISSION STRUCTURES

Structure	Pole Diam. (ft)	Field Location	Orientation to Field Edge	Farming Practice Annual Cost (per structure)					
				Non-irrigated Spring Wheat-Fallow		Non-irrigated Continuous Crop		Irrigated Cropping	
				2007	2008	2007	2008	2007	2008
Monopole	6.5	Long-Span Edge		$15.06	$34.76	$15.86	$42.57	$18.69	$47.70
Monopole	6.5	Long-span Interior		$107.98	$276.60	$160.44	$396.48	$266.61	$633.10
H-frame	3.0	Edge	Perpendicular	$37.13	$79.10	$40.91	$98.99	$41.91	$123.28
H-frame	3.0	Edge	Straddling Fence Line	$20.98	$47.89	$22.38	$58.97	$23.34	$67.95
H-frame	3.0	Edge	Parallel	$14.99	$34.65	$15.76	$42.42	$18.51	$47.40
H-frame	3.0	Interior		$120.57	$309.56	$177.74	$443.24	$290.41	$705.03

Notes:
H-Frame: 20-ft separation center to center.
Source: Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/21/07, Revised 6/02/08.

These cost estimates were used to estimate total costs to Montana farmers from having transmission structures on their lands under each of the action alternatives. Estimated total costs to farmers due to the presence of the MATL line are listed in **Table 3.13-12**. Estimated total costs were calculated by estimating the number of each type of structure that would be located along each routing alternative (e.g. H-frame at the edge of a field, monopole in the interior of a field) based on land uses. An 800-foot ruling span (distance between structures) and 6.5-foot pole diameter for monopoles were assumed. Then, for each alternative, the total number of each type of structure (e.g. H-frame versus monopole, field edge versus interior, irrigated versus dryland cropping) was multiplied by the corresponding cost figure from **Table 3.13-11**. A range of costs is given for each alternative due to uncertainty over exact pole placement and which cropping practices would occur on each dryland farm. Typically the lower end of each range is based on dryland spring wheat-fallow farming, whereas the higher end of each range is based on dryland continuous crop farming using spring wheat and irrigated farming.

The estimated costs in **Table 3.13-12** are gross costs that do not include the effects of compensation from the Project owner back to the farmer/landowner. Individual farmer costs would vary with each farm and might be different than the average costs estimated here. In order to evaluate the long-term costs over the potential life of the transmission line, the agencies estimated costs over a 50-year period based on the calculated annual costs. Estimated total annual gross costs and estimated total gross costs over the next 50 years to farmers for each alternative are listed in **Table 3.13-12**. Gross costs were estimated for both 2007 prices and 2008 prices. Discount rates (future costs or benefits at today's equivalent value) over time are ignored in order to err on the side of farmers. Alternative 3 is the most expensive to farmers, and Alternative 4 is the least expensive.

TABLE 3.13-12
ESTIMATED ANNUAL AND 50-YEAR GROSS COSTS TO AFFECTED FARMERS FROM THE MATL LINE
(ROUNDED TO THE NEAREST $1,000)

Route	Annual Gross Cost to Farmers[a]	50-Year Gross Cost to Farmers
2007 costs[b]		
Alternative 2	$57,000 to $86,000	$2,842,000 to $4,310,000
Alternative 3	$75,000 to $109,000	$3,759,000 to $4,556,000
Alternative 4	$41,000 to $59,000	$2,039,000 to $2,935,000
2008 costs		
Alternative 2	$145,000 to $213,000	$7,262,000 to $10,665,000
Alternative 3	$192,000 to $271,000	$9,607,000 to $13,562,000
Alternative 4	$103,000 to $146,000	$5,173,000 to $7,292,000

Notes:

[a]For Alternative 2, monopole structures would be used on 56 miles of cropland (including CRP) crossed on a diagonal; H-frame structures would be used on the remaining cultivated land. For Alternative 3, H-frame structures were assumed for the entire route. For Alternative 4, monopole structures were assumed on all cropland including CRP.

[b]Ranges of values reflect uncertainty regarding pole placement and dryland cropping practices. In the Draft EIS, 2007 costs were based on an assumption of continuous cropping on dryland farms.

Compensation to Farmers and Other Landowners

Although farmers would bear costs as a result of the proposed Project, they would also be compensated by both property tax relief that is part of state law (MCA 15-6-229) and MATL payments.

The four types of compensation to farmers and other landowners would include:

(1) A one-time right-of-way payment from MATL for an easement on their property. All owners of land within the 105-foot transmission line right-of-way would receive an one-time payment, not just farmers.

(2) An annual per-pole Loss of Use payment from MATL to all landowners with a structure on their property for having the pole on one's property. This payment would be intended to address impacts from removing land from productive use, such as the inability of a farmer to plant crops on the land occupied by the pole (Bob Williams, MATL, personal communication, May 7 and May 9, 2008).

(3) An annual Adverse Effects payment from MATL to owners of farmland (including CRP land) for extra costs incurred to continue farming operations in the presence of transmission structures (Bob Williams, MATL, personal communication, May 7 and May 9, 2008). Payment amounts would be negotiated, and are estimated to average $33.90 per structure per year (MATL 2008). Landowners eligible for both Adverse

Effects payments and Loss of Use payments would receive a single combined annual payment.

(4) An elimination of property taxes for class 3 farmland (**Glossary**) within 660 feet of the centerline of a new transmission line. This would not be compensation from MATL, but instead is tax relief authorized by the Montana Legislature (MCA 15-6-229).

The combined payment for Loss of Use and Adverse Effects would be renegotiated every five years between MATL and landowners in face-to-face consultations (MATL 2008).

The estimated annual payments to Montana farmers and other landowners under Alternatives 2, 3, and 4 (not including the one-time easement payment or tax relief) are given in **Table 3.13-13**.

TABLE 3.13-13
ESTIMATED TOTAL ANNUAL PAYMENTS FROM MATL TO ALL AFFECTED LANDOWNERS (ROUNDED TO THE NEAREST $1,000)

Alternative	Loss of Use Payment	Adverse Effects Payment	Total Annual Payment to all Affected Landowners
2	$46,000	$21,000	$67,000
3	$72,000	$21,000	$93,000
4	$39,000	$20,000	$59,000

The annual Loss of Use payment from MATL would be determined on a per-pole basis (Fernandez 2007). This payment would be intended to address impacts from removing land from productive use, such as the inability of a farmer to plant crops on the land occupied by the pole and the loss of space between the two poles of an H-frame or below and around guy wires. Typically the amount of the loss of use would be based on the profits otherwise earned by the farmer on such property (Bob Williams, MATL, personal communication, May 7 and May 9, 2008). For dryland agricultural land and rangeland with poles placed on the edges of fields, the annual payment was assumed to be $20. For any of these types of poles with a guy wire, the payment was assumed to be $30 per year. For poles on irrigated agricultural land and/or those that are in the interior of a field (including the interior of a dryland field), it was assumed that MATL would pay landowners $50 per year for poles without guy wires and $60 per year for poles with guy wires. For all two-pole, H-frame structures, these estimated payments would be multiplied by two.

Alternative 3 would have only H-frames or two poles per structure, resulting in a significantly higher overall annual Loss of Use payment to Montana landowners. Alternative 4 would place only monopoles in farm fields, and thus would have the lowest overall annual Loss of Use payment of the three routes. Alternative 2 is estimated to have 350 monopole structures and 265 H-frame structures in farmland, resulting in the second highest Loss of Use payment of the three alternatives. Total annual MATL payments for Loss of Use are estimated to be about $46,000 for Alternative 2, $72,000 for Alternative 3, and $39,000 for Alternative 4.

To estimate the total annual Adverse Effects payments for each alternative, the agencies assumed that MATL would pay farmers an average of $33.90 per structure each year as compensation for the additional farming costs resulting from having transmission structures in their fields. The $33.90 annual average is based on a formula developed by DeVuyst et al. (2008) for MATL. This is different from the study that DEQ commissioned. MATL anticipates offering a flat rate for different types of land use: pasture, dry land, and irrigated lands. The DeVuyst model calculates an amount that depends on the type of crop, productivity of lands and input costs (Bob Williams 2008b). For simplicity, the $33.90 number was multiplied by the total number of structures on each of the three alternative routes to estimate the amount of this compensation. **Table 3.13-14** summarizes the final estimated total 'adverse effects' compensation to farmers per route.

TABLE 3.13-14
ESTIMATED ANNUAL ADVERSE EFFECTS PAYMENTS TO FARMERS

Alternative	Number of Monopoles	Number of H-Frames	Total annual payment (rounded to nearest $100)
2	350	265	$21,000
3	0	630	$21,000
4	587	0	$20,000

To arrive at the estimated net annual monetary effect on farmers, the estimated total of annual payments by MATL (**Table 3.13-13**) was subtracted from the annual gross costs to farmers (**Table 3.13-12**) calculated from 2007 and 2008 cost data. The resulting net annual monetary effects are given in **Table 3.13-15**.

TABLE 3.13-15
ESTIMATED ANNUAL AND 50-YEAR NET EFFECT ON FARMERS
(ROUNDED TO THE NEAREST $1,000)

	Annual Gross Cost to Farmers	Annual Compensation to Farmers from MATL	Net Annual Effect to Farmers	Net Effect to Farmers over 50 years (including one-time easement payment)
2007 costs				
Alternative 2	$57,000 to $86,000	$67,000	-$19,000 to $10,000	$11,000 to $1,439,000
Alternative 3	$75,000 to $109,000	$93,000	$-16,000 to $18,000	$118,000 to $1,818,000
Alternative 4	$41,000 to $59,000	$59,000	$0 to $18,000	$974,000 to $1,874,000
2008 costs				
Alternative 2	$145,000 to $213,000	$67,000	-$78,000 to -$146,000	-$2,961,000 to -$6,361,000
Alternative 3	$192,000 to $271,000	$93,000	-$99,000 to -$178,000	-$4,032,000 to -$7,982,000
Alternative 4	$103,000 to $146,000	$59,000	-$44,000 to -$87,000	-$1,226,000 to -$3,376,000

In addition to annual payments, farm and ranch landowners in Montana who granted easements for the project would receive one-time easement payments estimated as follows: $939,000 total for Alternative 2, $918,000 for Alternative 3, and $974,000 for Alternative 4. The easement payments are meant to compensate the landowners for MATL's use of their property. The total easement payments were estimated by the agencies based on information from MATL, estimated lengths of the transmission line alignments, and land use data. MATL has indicated that the easement payment would be equal to the market value of the land (MATL 2008). Because the agencies do not know the market values of different types of land in the study area, estimated values supplied by MATL in 2007 were used in estimating easement payments. Specifically, the agencies assumed that MATL would pay landowners a one-time easement payment of $375 per acre for rangeland, $650 per acre for dryland agricultural, and $1,200 per acre for irrigated agricultural land (Fernandez 2007). Forest land and riparian land would be compensated the same as rangeland and other types of land would be paid an easement corresponding to fair market value, depending on the area (e.g., Great Falls would have a higher value than Conrad). For the purpose of estimating monetary effects for farm and ranch owners, **Table 3.13-16** gives the total acreage for each type of land for Alternatives 2, 3 and 4 and the total resulting estimated one-time easement payments for farm and ranch land only. The acreage is estimated by multiplying the 105-foot-wide easement by the total mileage for each land use category.

TABLE 3.13-16 ACRES AND EASEMENT PAYMENT				
Alternative	Acres of Rangeland	Acres of Dryland Ag Land	Acres of Irrigated Ag land	Total One-Time Easement Payment
2	418	1,169	19	$939,000
3	287	1,169	42	$918,000
4	604	1,111	21	$974,000

For use in calculating the net monetary effect on farm landowners over a 50-year period, annual MATL payments (**Table 3.13-15**) were multiplied by 50. The resulting 50-year total of annual MATL payments and the total one-time easement payment (**Table 3.13-16**) were subtracted from the estimated 50-year total gross costs (**Table 3.13-12**) to arrive at a range of estimates for the net monetary effect on Montana farmers over 50 years from each of the action alternatives (**Table 3.13-15**). For the net effect to farmers over 50 years, the one-time easement payment is included on the benefit side to farmers, since the 50 years is meant to represent an estimate of potential effects over the life of the line, and the easement payment is a payment for the right to access the property over the life of the line. Using 2007 costs, the estimated annual net monetary effect for all farm landowners ranges from negative to positive for Alternatives 2 and 3 and ranges from neutral to positive for Alternative 4, while the estimated 50-year effect is positive for all three Alternatives. Using the record-high farming costs experienced in 2008, however, the estimated annual and 50-year net effects for farm landowners are negative for all alternatives.

The estimates of net monetary effects in **Table 3.13-15** do not include the compensation that affected Montana landowners would receive as a result of the property tax relief provided in House Bill 3 of the April 2007 Special Legislative Session. Section 8 of House Bill 3 from the April 2007 Special Legislative Session provides for a property tax exemption for class 3 agricultural land and class 10 timberland within 660 feet of the center of the right-of-way of an electric transmission line with a capacity of 30 megavoltamperes or greater, constructed after January 1, 2007 (MCA 15-6-229). The Montana Department of Revenue (DOR) estimates that the effect of the property tax exemption for land adjacent to the right-of-way of MATL would be a lowering of future tax revenues to the State general fund of $7,169 in both FY 2010 and FY 2011. The university state special revenue would be reduced by $452 in both FY 2010 and FY 2011. Local government and school revenues would decrease by $31,870 in both FY 2010 and FY 2011 (DOR 2007). It is assumed that this tax relief would continue for the life of the line. The estimated total of these decreases is about $40,000 per year, which is $40,000 less in property taxes that landowners along MATL would otherwise pay each year (DOR 2007).

Differences Between Alternatives 2 and 4: Farmer Net Effects from Transmission Structures Versus MATL Costs of Construction

A comparison was made between (1) the additional net costs that farmers would incur over a 50-year period from Alternative 2 relative to Alternative 4 and (2) the additional upfront costs that MATL would incur to construct its proposed line under Alternative 4 instead of Alternative 2. **Table 3.13-17** presents the results of this analysis, which was based on 2008 farming costs and construction costs estimated in 2007 (**Table 4.20-1**).

Farmers would incur anywhere from an estimated $0.42 million in savings up to a $5.1 million in additional costs over 50 years from Alternative 2 versus what they would experience under Alternative 4 (2008 costs). On the other hand, MATL would incur an estimated $4.1 million more in upfront costs to construct Alternative 4 over Alternative 2. MATL would likely incur additional costs beyond the $4.1 million in constructing Alternative 4 over Alternative 2 due to potential refinancing, right-of-way issues, and possibly due to delays in building the line.

Overall, this comparative analysis suggests it is likely that MATL would incur more additional costs from constructing Alternative 4 than farmers would incur as a result of Alternative 2 (assuming middle range values). However, at the high end of the Alternative 2 farmer costs, the additional costs that farmers might incur would be very similar to the additional costs for MATL to build Alternative 4.

TABLE 3.13-17
FARMER NET EFFECTS FROM MATL OVER 50 YEARS COMPARED WITH MATL COSTS OF CONSTRUCTION FOR ALTERNATIVES 2 AND 4 (2008 Farmer Costs)

Alternative	Net Effect to Farmers over 50 years	Additional Cost to Farmers over Alt 4	MATL Cost of Construction	Additional Cost to MATL over Alt 2
2	-$2,961,000 to -6,361,000	-$415,000 to $5,135,000	$39,875,000	
2	-$1,226,000 to -$3,376,000	----	$43,994,000	$4,119,000

Effects on Property Values

Property values depend on many factors. A review of recent studies indicates that property values could decrease slightly, might not change, or may increase with the presence of a transmission line (EPRI 2003). Some reduction in property values due to the presence of the transmission line could occur as a consequence of the visual effects of the towers, perceived health risks associated with high voltage, and effects on farming efficiency. Property devaluation would likely be more evident on properties immediately adjacent to the line, particularly those where residences are close, or the land is farmed. However, most of the MATL line is on remote ranch and cropland. For

these properties, changes in value due to perceived impacts would likely be negligible (EPRI 2003) or at least partially offset by negotiated compensation.

There is an increasing body of literature concerning the effects of transmission lines on property values. The review mentioned in the previous paragraph, *Transmission Lines and Property Values: State of the Science*, by EPRI (November 2003), found that some transmission lines caused small decreases in property values, some caused no effect, and some lines caused a small increase in property values. These studies included surveys, opinion-based studies and quantitative studies that were either market-data comparisons or econometric approaches. Most of these studies were conducted from 1991-2003. The main conclusions (on page 4-1) of the study were:

1) There is evidence that transmission lines have the potential to decrease nearby property values, but this decrease is usually small (6.3% or lower);
2) Lots adjacent to the right-of-way often benefit; lots next to adjacent lots often have value reduction;
3) Higher-end properties are more likely to experience a reduction in selling price than lower-end properties;
4) The degree of opposition to an upgrade project may affect the size and duration of the sales price effects;
5) Setback distance, right-of-way landscaping, shielding of visual and aural effects, and integration of the right-of-way into the neighborhood can significantly reduce or eliminate the impact of transmission structures on sales price;
6) Although appreciation of property does not appear to be affected, proximity to a transmission line can sometimes result in increased selling times for adjacent properties;
7) Sales-price effects are more complex than they have been portrayed in many studies;
8) Effects of a transmission line on sales prices of properties diminish over time and all but disappear in five years.

An older review consisting of appraiser studies found varying results as well. This study was entitled *The Effects of Overhead Transmission Lines on Property Values, A review and Analysis of the Literature*, by Cynthia Kroll and Thomas Priestley, Edison Electric Institute Siting and Environmental Planning Task Force (1992). It found that property values may be but are not always affected by transmission lines. About half the studies the review looked at found no effects from transmission lines on property values for residential and agricultural property. Some studies found a small negative effect on agricultural land and a few found larger adverse effects (2 to 20 percent lower values). Only some agricultural property owners thought that their property was worth less overall because of the lines. It was stated in this review that the appraisal technique used for the review did not provide statistically reliable results.

Other Benefits and Costs from MATL to the Local Area

Employment: MATL proposes to use experienced operations and maintenance (O&M) contractors, possibly obtained from other regionally-located utility companies, for ongoing maintenance of the transmission line once it is constructed. This may provide additional employment opportunities, although these may go to non-local residents. The number of employees that could be hired is unknown at this time; however, the estimated wages are expected to be in the $25 per hour range (Pfister 2007). A small number of new residents working on the MATL project might move into the study area as a result of the transmission line. The expected beneficial effect of this long-term employment on the line would be minor. Employment, income, tax, and secondary benefits could also arise if wind farms are built in the area as a result of the line. These effects are discussed in Chapter 4.

Tax Revenue: In Montana, property tax is the primary source of funding for local governments. A recent change in Montana tax law (2007 Legislative Session) allows certain new transmission lines that carry renewable energy to be taxed at a lower rate than the standard 12% property tax rate (Section 15-6-157(1)(p), MCA). According to MATL, the proposed transmission line would qualify for this tax incentive. If so, the Project would be centrally assessed (as a single unit) at 3% rather than 12%, which would potentially save MATL over $2 million per year in Montana property tax liabilities. The revenue would be apportioned to different districts based on mileage of line within each district. Under Section 15-24.3111, MCA, a facility such as MATL may qualify (under certain conditions) for an abatement of property tax liability of 50% for up to 19 years. It is not known whether MATL would qualify for such an abatement, or whether such an abatement would be given. The 3% tax rate is assumed in calculating estimated tax revenues. If MATL received tax abatement, its tax liability would be as low as a 1.5 % (for a 50% abatement).

Property taxes assessed on the Project would be based on the value of the line. Applicable mill levies would also be applied to the property taxes paid within each district. The approximate amount of property taxes potentially available to each county within the analysis area was calculated based on an estimated transmission line value of $363,284 per mile and the approximate mileage of the proposed alignment and alternatives (Mullen 2006).

As shown in **Table 3.13-18,** the line may generate tax revenue ranging from $28,122 in Chouteau County to $259,742 in Pondera County. Since MATL crosses county lines, it would be assessed as a unit rather than as separate individual components. The total value is then allocated to taxing jurisdictions based on the portion of the line in each jurisdiction. As long as the line is used and maintained, its value would be based on capitalized future revenue rather than depreciated costs, and tax revenue and the

benefits available to each county are expected to be relatively constant over time (Dodds 2006).

In addition to property taxes, the Project would also be subject to the Wholesale Energy Transaction (WET) Tax, which is imposed by the State of Montana at a rate of $0.00015 per kilowatt hour (kWh). Estimating total amounts that would be generated by the WET Tax is beyond the scope of this study. Revenue generated from this source is directed to the state's general fund, which is distributed to projects (primarily school districts) throughout the state (Dodds 2006).

Increased Availability of Power Transmission Options: Although the expected permitted firm capacity of the Project has been sold, it is likely that some non-firm capacity would be available for other energy transactions. The operation of the MATL line would provide an additional avenue for transferring energy between the western U.S., including Montana, and Canada. Currently, without this or other future transmission lines, power transmitted between Montana and Alberta, must go through Idaho, Washington, and British Columbia. Energy shippers transferring power between Montana and Alberta incur additional transmission tariffs that would not be incurred if the MATL line were available to them.

Increased energy transactions between buyers and sellers of electricity as a result of MATL line along with more efficient paths of conveyance could increase the competition between suppliers and potentially result in lower rates to Montana customers. On the other hand, most of the time Alberta prices tend to be higher than the Mid-Columbia Hub (Mid-C) prices, and Mid-C prices are usually higher than the prices that Montanans pay. Mid-C electricity prices are measured in Washington State and like the stock market, measure the hourly prices of electricity in the Northwest U.S. region. This could mean that some Montana-generated electricity might be exported to Alberta over MATL if Albertans can obtain cheaper electricity from the U.S. at certain times of the year. If the wind farms are constructed and electricity is exported from Montana to Alberta, this price difference is not likely to substantially affect Montana consumer rates. Because the amount of transmission capacity the MATL line would open up between Montana and Alberta would be relatively small compared to the total amount of interconnection capacity Montana currently has with other states, it is likely that increases in competition and changes in electricity prices would be limited or non-existent as a result of the proposed line.

The socioeconomic impacts described above are essentially equal for all of the alternatives with the exception of differences in the estimated property tax revenue available to each affected county depending on the mileage of the line that would ultimately be constructed within each county's jurisdiction (**Table 3.13-18**). Also, net farmer benefits and landowner compensation would be slightly different for each Alternative.

TABLE 3.13-18
TAX BENEFIT ESTIMATES FROM MATL WITH 3% TAX RATE

	Alignment Length (Miles)	Value $/Mi.	Estimated Value in County	Class 9 Tax Rate: 3%	Taxable Value	Avg. Rural Mill Levy	Property Tax
Cascade							
Alternative 2	12.76	$363,284	$4,635,504	0.03	$139,065	0.50412	$70,105
Alternative 3	12.31	$363,284	$4,472,026	0.03	$134,161	0.50412	$67,633
Alternative 4	19.81	$363,284	$7,196,656	0.03	$215,900	0.50412	$108,840
Chouteau							
Alternative 2	5.87	$363,284	$2,132,477	0.03	$63,974	0.43959	$28,122
Alternative 3	10.21	$363,284	$3,709,130	0.03	$111,274	0.43959	$48,915
Alternative 4	0	$363,284	$0	0.03	$0	0.43959	$0
Glacier							
Alternative 2	40.41	$363,284	$14,680,306	0.03	$440,409	0.53745	$236,698
Alternative 3	37.34	$363,284	$13,565,025	0.03	$406,950	0.53745	$218,715
Alternative 4	40.56	$363,284	$14,680,306	0.03	$440,409	0.53745	$236,698
Pondera							
Alternative 2	45.69	$363,284	$16,598,446	0.03	$497,953	0.52162	$259,742
Alternative 3	44.44	$363,284	$16,144,341	0.03	$484,330	0.52162	$252,636
Alternative 4	52.01	$363,284	$18,894,401	0.03	$566,832	0.52162	$295,671
Teton							
Alternative 2	25.16	$363,284	$9,140,255	0.03	$274,208	0.4991	$136,857
Alternative 3	17.32	$363,284	$6,292,079	0.03	$188,762	0.4991	$94,211
Alternative 4	27.26	$363,284	$9,903,122	0.03	$297,094	0.4991	$148,280
Total							
Alternative 2							**$731,525**
Alternative 3							**$682,112**
Alternative 4							**$789,488**

Notes:

Sources: Mullen 2006

Montana Department of Revenue 2004

3.13.3.3 Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629, 16 February 1994), directs each Federal agency to:

> "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effect of its programs, policies, and activities on minority and low-income populations."

The Presidential Memorandum that accompanied EO 12898 emphasized the importance of using existing laws, including NEPA, to identify and address environmental justice concerns, "including human health, economic, and social effects, of Federal actions." CEQ, which oversees the Federal government's compliance with EO 12898 and NEPA, has subsequently developed guidelines to assist Federal agencies in incorporating the goals of EO 12898 into the NEPA process. This guidance, published in 1997, was intended to "assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed" (CEQ 1997). DOE has also published recommendations for complying with the EO as part of the NEPA process (DOE 2004).

Affected Environment

Pursuant to EO 12898, this section identifies possible minority or low-income populations that might be subject to disproportionately high and adverse environmental impacts or health effects from the proposed MATL Project.

Minority Populations. The CEQ guidelines define "minority" as individual(s) who are members of the following population groups: "American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic" (CEQ 1997). The guidelines identify these groups as a "minority population" when either "(a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage in the affected area is meaningfully greater than the minority population percentage in the general population or appropriate unit of geographical analysis" (CEQ 1997).

To identify minority populations for this analysis, DOE compared the populations of ethnic minority groups in the study area (as defined for this EIS) with percentages tabulated for the state of Montana and the whole United States. As indicated in **Table 3.13-2**, there are only very small percentages of Asian or Pacific Islander, Black, or Hispanic residents in the study area and the state of Montana. Therefore, this analysis focuses only on two populations: (1) all minority groups combined and (2) American

Indian populations. The following text discusses the total minority and American Indian populations within the study area using census tract[6] data from the 2000 U.S. Census, which is the most recent year for which complete data are available at the census tract level. **Figure 3.13-1** shows the census tracts in the region surrounding the proposed Project, and **Figure 1.1-1** shows the study area as defined in this EIS. **Table 3.13-19** lists the total minority and American Indian population percentages for the eight census tracts located at least partially within the study area.

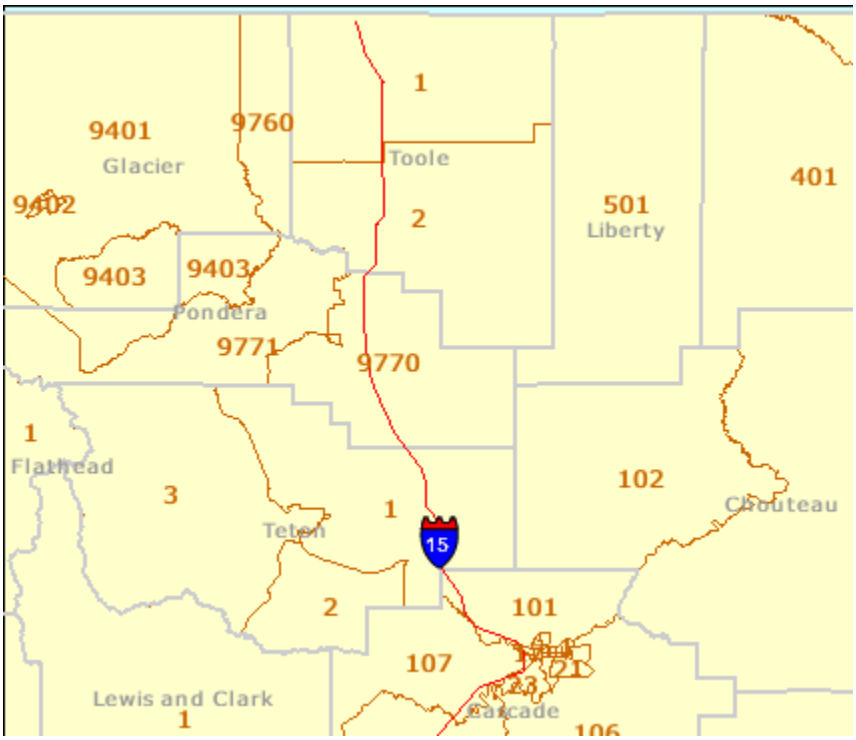


Figure 3.13-1 Census tracts in the region surrounding the proposed Project (Area shown is approximately 130 miles across and does not include the full western extent of CT 9771 in Pondera County; **Figure 1.1-1** shows the Project study area and the location of the three action alternatives.)

[6]As defined by the Census Bureau, census tracts are small, relatively permanent statistical subdivisions of a county. Tracts are delineated by a local committee of census data users for the purpose of presenting data. Census tract boundaries normally follow visible features, but may follow governmental unit boundaries and other non-visible features in some instances; they always nest within counties. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions, census tracts average about 4,000 inhabitants (U.S. Census Bureau 2007a).

As indicated in **Table 3.13-19**, the census tracts located within the study area have much lower total minority population percentages than the United States as a whole, and all but one have smaller percentages of minority populations than the state of Montana. One census tract in the study area (Census Tract 9760 in Glacier County) has an American Indian population that is more than 16 times higher (10.9 percentage points greater) than that tabulated for the United States in the 2000 census, but is only about twice as high (5.6 percentage points greater) as the statewide percentage of American Indians. Glacier County as a whole has a very high American Indian percentage (61.0 percent of the county's population classified themselves as American Indian in the 2000 Census) due to the presence of the Blackfeet Indian Reservation, which is located west of the town of Cut Bank, outside the study area for this EIS. For purposes of incorporating environmental justice considerations into this analysis, the minority population percentage and American Indian percentage in the study area do not appear to be "meaningfully greater" than that in the state of Montana or the United States. The largest concentration of American Indians near the study area, the Blackfeet Indian Reservation in Glacier County, begins just to the west of the study area, and has headquarters over 30 miles away in Browning. The Project is not expected to have disproportionately adverse effects on any of the resources used by area Tribes (see discussion below).

TABLE 3.13-19
RACIAL AND ETHNIC COMPOSITION (BY PERCENTAGE) IN 2000 OF CENSUS TRACTS (CT) WITHIN THE STUDY AREA

Location	Number of residents	White	Total minority	American Indian
CT 101 in Cascade County	3,818	90.5	9.5	4.4
CT 102 in Chouteau County	2,221	97.8	2.2	0.4
CT 9760 in Glacier County	3,996	84.2	15.8	11.6
CT 9770 in Pondera County	4,069	95.5	4.5	2.1
CT 9771 in Pondera County	1,464	94.1	5.9	2.9
CT 1 in Teton County	1,966	95.2	4.8	1.0
CT 1 in Toole County	1,393	94.8	5.2	2.0
CT 2 in Toole County	3,874	92.7	7.3	3.5
State of Montana	902,195	89.5	10.5	6.0
United States	281,421,906	69.1	30.9	0.7

Source: U.S. Census Bureau 2007b

Low-Income Populations. CEQ guidance defines "low-income" using statistical poverty thresholds from the Bureau of Census Current Population Reports, Series P-60 on Income and Poverty, by household. In identifying low-income populations, a population may be considered either as a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effects.

To identify possible low-income populations, DOE used CEQ's definition of low-income households, and compared the percentages of households below the poverty level (i.e., incomes less than or equal to the official 2000 poverty threshold of $17,463 for a family of four) in the eight study area census tracts with percentages tabulated for the state of Montana and the whole United States in the 2000 Census.

Table 3.13-20 lists the low-income population percentages (as indicated by the percentage of households below the poverty level) for the eight census tracts located at least partially within the study area.

TABLE 3.13-20
LOW-INCOME COMPOSITION (BY PERCENTAGE) IN 2000
FOR CENSUS TRACTS WITHIN THE STUDY AREA

Location	Number of households	Percentage of households below the poverty level
CT 101 in Cascade County	1,464	12.9
CT 102 in Chouteau County	893	13.5
CT 9760 in Glacier County	1,578	11.8
CT 9770 in Pondera County	1,646	13.2
CT 9771 in Pondera County	541	20.9
CT 1 in Teton County	741	14.0
CT 1 in Toole County	509	13.8
CT 2 in Toole County	1,453	10.3
State of Montana	358,667	14.0
United States	105,480,101	11.8

Source: U.S. Census Bureau 2007c

As indicated in **Table 3.13-20**, most of the census tracts within the study area have low-income population percentages similar to the state and national averages. However, Census Tract 9771 in Pondera County has a percentage of low-income households (20.9 percent) that is about one-and-one-half times the state percentage of low-income households (6.9 percentage points greater) and more than one-and-three-fourths times the national percentage (9.1 percentage points greater). This is a geographically expansive and sparsely settled census tract. Additional detail on income distribution within the census tract is not available. However, the preponderance of census-reported

poverty in this census tract may be attributable to the presence of several Hutterite colonies, the closest of which is the New Miami Colony that is about 9 miles west of Alternative 2 and 7.5 miles west of Alternative 3 (outside the study area for this EIS). Personal and household income data reported for families living in the communal setting of a Hutterite colony may not be consistent with the true household economic situation. Due to the small total size and highly dispersed nature of the population of this census tract, as well as the distance of the Hutterite colonies from the study area for this EIS, this census tract does not appear to be a "low income" population within the meaning of EO 12898.

Environmental Impacts

As discussed above, DOE identified one small "minority" concentration (the American Indians in Census Tract 9760 in Glacier County) and one small "low-income" concentration (Census Tract 9771 in Pondera County) in the study area census tracts. Although these do not appear to be "minority" or "low income" populations pursuant to EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, this section examines the potential for the proposed Project to result in disproportionately high and adverse impacts to any minority population (specifically American Indians) and low-income households in the study area.

Methodology: To determine whether there would be disproportionately high and adverse human health or environmental effects of the proposed Project on minority and low-income populations, DOE considered the following (DOE 2004):

- For each alternative, are there any significant adverse impacts to minority and low income populations that would appreciably exceed impacts to the general population or other appropriate comparison group, considering all potential impacts (e.g., health effects, air quality, water quality, cultural resources, cumulative impacts)?

- Would minority and low-income populations have different ways than the general population of being affected by an alternative, such as unique exposure pathways or rates of exposure (e.g., from subsistence fishing), special sensitivities (e.g., to air pollution because of less access to health care and poorer control of asthma), or different uses of natural resources (e.g., for cultural, religious, or economic practices)?

Alternative 1, the no-action alternative, would not result in any adverse impacts that would be experienced disproportionately by minority or low-income populations.

Under the action alternatives, the main environmental impacts potentially affecting residents within the study area would be in the form of changes to the visual setting from the presence of the transmission line and supporting towers. As discussed in Section 3.15.3, each of the alternative alignments would have visual impacts on

residents within the study area. However, because these impacts to residents would be distributed along the alternative alignments (as indicated by the locations of houses on **Figures 3.15-1** through **3.15-3**) and not concentrated in Census Tract 9760 in Glacier County or in Census Tract 9771 in Pondera County, the proposed Project's visual impacts would not represent a disproportionately high and adverse effect on American Indian or low-income residents in these locations. Analysis in this EIS found that other potential environmental hazards, including EMF exposure, air emissions, and noise, would not significantly affect the surrounding population, and no mechanism has been identified for minority or low-income populations to be disproportionately affected.

As discussed in Section 3.8.3.2, the action alternatives would not negatively affect wildlife populations that could serve as a food source for minority or low-income populations in the area. DOE is not aware of any other special circumstance that would disproportionately impact American Indian or low-income residents.

The proposed Project is within the traditional territories of several Native American tribes, and Census Tract 9760 is just outside the eastern boundary of the Blackfeet Indian Reservation. As discussed in Section 3.14.3, Blackfeet Tribal representatives have stressed the need to evaluate the proposed Project's potential to impact Traditional Cultural Properties (i.e., those sacred sites that have traditional spiritual values for the tribe). Mitigation measures described in Section 3.14.3 (e.g., inclusion of tribal monitors during cultural surveys, establishment of a Memorandum of Understanding [MOU] that includes the Blackfeet's Tribal Historic Preservation Office [THPO]) would help prevent disproportionately adverse effects to Tribal Traditional Cultural Properties.

On the basis of the foregoing analysis, DOE concludes that no disproportionately high and adverse impacts would be expected for minority or low-income populations.

3.14 Paleontological and Cultural Resources

3.14.1 Analysis Methods

Paleontological and cultural resources provide valuable information about the behavior of past plant, animal, and human populations and their environments. Paleontological resources are fossilized plant and animal remains that are rare and have scientific research value. Cultural resources include archaeological sites, historic sites, architectural properties, traditional cultural properties, districts, landscapes, structures, features, or objects resulting from human activity. Both resources are nonrenewable and irreplaceable, and Montana state law requires that inventory for and evaluation of these resources occur before they are impacted by ground disturbing activities or removed from state ownership.

Federal regulations that were considered for this analysis include the National Historic Preservation Act of 1966, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1977, the Native American Graves Protection and Repatriation Act of 1990, and Executive Orders relevant to cultural resources. State legislation considered includes the Montana Antiquities Act and the Montana Human Remains and Burial Site Protection Act.

Known prehistoric cultural resource sites (thousands of years old) and historic sites (at least 50 years old) have been documented in the project area. The number and variety of sites increases through time due to population increases and the effects of immigration. Existing sources of information were consulted in order to analyze paleontological and cultural resources, as described below.

Information Resources

The Montana Antiquities Database maintained by the Montana State Historic Preservation Office (SHPO) in Helena was the primary source for information about specific cultural resource sites and paleontological localities in the project study area. The Cultural Resources Information System (CRIS) contains summary information about previously recorded resources by site type and township, range, and quarter section. The Cultural Resources Annotated Bibliography System (CRABS) contains listings of previous resource inventories by township, range, and section. A search for sites listed in the National Register of Historic Places (NRHP) was conducted through SHPO and on-line through the National Park Service, as appropriate.

A variety of literature references including Frison (1991, 2001), Greiser (1984, 1994), Hanna (2003), Malone and Roeder (1976), Montana State Engineer's Office (1964), Montana Water Resources Board (1969), Schwantes (1996), Toole (1959), and Walker and Sprague (1998) were used in preparation of sections of this EIS related to paleontology, prehistory, and history. Information from Class I and Class III cultural resources inventories (Ferguson 2007; Petersen and Ferguson 2006) was also incorporated.

Analysis Area

The analysis area for paleontological and cultural resources is at least 480 square miles with a research area extending 2 miles to either side of the proposed and alternative alignments (figures showing these alignments are provided in Chapter 2).

In the Great Falls area, the lacustrine basins and related features are interspersed with areas of nearly level to steep soils on terraces, fans, and benches mixed with strongly sloping to steep soils on dissected sedimentary bedrock plains and hills. From just north of the Cascade County line to the Canadian border, the analysis area crosses the undulating to strongly rolling topography of the Glaciated Missouri Plateau section of the Great Plains physiographic province. This part of the area is also interspersed with nearly level soils in lacustrine basins surrounded by strongly sloping soils on terraces, fans, and benches. The lush grasslands once found in the area during much of the prehistoric past provided sufficient food for large herds of bison, antelope, and deer, with elk found in or near forested areas closer to the mountains or in the river breaks. These animals were not only food sources, but also provided materials for clothing, tools, and shelter. Grizzly and black bear were likely common and there was a wide variety of game birds and migratory water fowl. Other plant resources would provide roots, bulbs, fruits, berries, greens, and leaves for eating, making teas, and for medicinal purposes. Stone material left behind by glaciers or exposed by erosional episodes were used for hide anchors on tipis, piled for use as cairns or alignments for animal drive lines, and worked into stone tools.

Cultivation of much of the analysis area for more than the past century has impacted many of the shallow prehistoric cultural resource sites such as tipi rings or campsites in areas of little soil development. Intact prehistoric sites can be anticipated in areas of deep soils either on terrace or bench surfaces or in drainages where redeposited soils would protect them. Historic homestead, farm, or ranch buildings or foundations and related features or structures might be more visible in the agricultural areas.

3.14.2 Affected Environment

Paleontological Sites

A fossil is defined as the remains, trace, or imprint of a plant or animal that has been preserved in a geologic context. These fossils are grouped into categories including: trace, plant, invertebrate, fish, amphibian, reptile, dinosaur, bird, mammal, and vertebrate. A trace fossil (ichnofossil) is a track, trail, burrow, or tube formed by the activity of an animal. Coprolites, or fossilized dung, are also trace fossils. Fossilized plants occur as physical remains (petrified wood) or imprints (leaf impressions). Stromatolites (laminated algal mounds) and Cyanobacteria (blue-green algae) are included in the plant category. Invertebrates are animals without backbones that inhabit marine, freshwater, and terrestrial environments, and are also found in the study area.

The geologic formation with the highest probability of containing fossils in the study area is the Two Medicine Formation. The only other formations with low to moderate probability of containing fossils include the Eagle, Kootenai, and Virgelle. The remaining formations or geologic types within the Study Area have little or no potential to contain fossils. Areas within the Two Medicine, Eagle, Kootenai, and Virgelle formations with potential to contain fossils primarily occur on steep exposed slopes above major river channels north from the Conrad area. In general, the distribution of fossils has not been determined at other locations within the Study Area since most of the Cretaceous rocks are covered by 1 to 15 feet of glacial deposits, and no paleontological fieldwork is reported. However, the likelihood of encountering new fossil types of significance to the scientific community is thought to be low because of the low amount of disturbance to deeper layers.

Cultural Sites

In some parts of the analysis area the nomadic, hunting and gathering lifeway persisted until European contact, while many Native American groups throughout the western United States generally became sedentary, settling in permanent or semi-permanent dwellings. By Late Prehistoric times the native populations were often settled into seasonal camps or villages, with those living on and near the Plains becoming specialized nomadic bison hunters. Known prehistoric site types in the analysis area include: tipi rings, buffalo jumps, open camps, lithic scatters, and cairn sites. Other site types that might be anticipated are house pits, cache pits, caves, rockshelters, kill or processing sites for other herd animals, lithic material quarries, pictographs, petroglyphs, medicine wheels, vision quest sites, and human burials.

Known historic site types in the analysis area likely include: exploration and overland migration sites, such as trails (likely Native American in origin), river fords, wagon roads, encampments, or geologic/geographic landmarks; inscriptions, including pictographs, petroglyphs, or tree carvings; transportation sites, such as late nineteenth-early twentieth century roads, railroad engineered features (bridges, trestles, ballast, track, and ties) and construction camps; isolated trappers cabins; homesteading, ranching, and farming sites, such as residences (including foundations), outlying buildings and structures, cultural landscape elements (including fences, field/pasture patterns, stock ponds and dams, stock trails, and river fords), irrigation structures, and artifact scatters; mining and mine related sites; and abandoned town sites, including foundations and trash dumps.

Summary of Previously Recorded Data

A Class I review of previously recorded cultural resources and previous cultural resource inventories for the MATL proposed transmission line analysis area indicates that there are known prehistoric and historic cultural resources in or near the Proposed Action and the Alternative 3 (Petersen and Ferguson 2006). An additional Class I search for previously recorded cultural resources in sections containing Alternative 4 segments was conducted in November 2006. All Class I information is summarized in **Table 3.14-1**. The searches are computerized searches of records maintained by the SHPO using township, range, and section legal descriptions. The resulting data indicate the presence or absence of cultural resources in a section but not necessarily on the route of a specific alternative.

In total, ten sites, one prehistoric and nine historic, are eligible for the NRHP on the basis of consensus determination between the SHPO and a lead Federal or state agency. Cascade County contains the eligible Rainbow Dam Road 24CA416, which is located in sections containing Alternatives 2, 3, and 4. Another Cascade County site is 24CA1040, an eligible historic transmission line, crossed by Alternative 4. Site 24PN24 is an eligible tipi ring site along both Alternative 2 and Alternative 3 in Pondera County. Sites 24PN109 and 24PN111 are historic irrigation systems located in Pondera County intersecting Alternatives 2 and 3. Two eligible sites located in Pondera County are an historic railroad (24PN114), along Alternatives 2 and 3, and an historic oil refinery (24PN117), along Alternative 3. Sites 24GL191 and 24PN114 are portions of the Great Northern Railway; now part of the Burlington Northern-Santa Fe, located in Glacier and Pondera counties along Alternatives 2, 3, and 4. While the exact route of the Lewis and Clark National Historic Trail through the analysis area has not been identified, it is known that it followed the Marias River and is a resource of concern. Finally, two irrigation systems in Pondera County (24PN87 and 24PN88) are eligible historic sites.

TABLE 3.14-1 RESULTS OF CLASS I INVENTORY			
Site Type	**Consensus Determination of Eligibility**	**No Determination or Unknown Eligibility**	**Not Eligible (Determined by SHPO)**
Alternative 2 **Prehistoric Sites**			
Tipi Ring Sites	24PN24	24TT1008 24PN21 24PN5 24GL55	24PN112
Buffalo Jumps	--	24GL348 24GL587	--
Cairn Sites	--	24GL1032	--
Historic Sites			
Historic Road/Trail	24CA416	24CA645 24PN83	--
Railroads	24GL191/24PN114	--	--
Railroad/Stage routes		24PN34	--
Bridges	--	24PN46	--
Homesteads/ Farmsteads/ Residences	--	24PN119	--
Irrigation Systems	24PN88, 24PN109, 24PN111	--	--
Alternative 3 **Prehistoric Sites**			
Tipi Ring Sites	24PN24	24PN21 24GL55	--
Buffalo Jumps	--	24GL348 24GL587	--
Cairn Sites	--	24GL1032	--
Historic Sites			
Historic Road/Trail	24CA416	--	--
Railroads	24GL191/24PN114	--	--
Bridges	--	24PN46	--
Homesteads/ Farmsteads/ Residences	--	24PN82	24PN115 24PN116
Irrigation Systems	24PN87, 24PN109, 24PN111	--	--
Historic Oil Refinery	24PN117	--	--
Unknown Historic	--	24TT1006 24PN20	--

TABLE 3.14-1
RESULTS OF CLASS I INVENTORY

Site Type	Consensus Determination of Eligibility	No Determination or Unknown Eligibility	Not Eligible (Determined by SHPO)
Alternative 4 - Segments			
Prehistoric Sites			
Tipi Ring Sites	--	24CA194 24CA195 24CA196 24TT1008 24PN773 24PN61	--
Lithic Scatter	--	24CA192 24CA193	--
Camp Site	--	24CA445 24CA494	--
Historic Sites			
Historic Road/Trail	24CA416	24PN83	--
Railroads	24GL191	--	--
Homesteads/ Farmsteads/ Residences	--	24CA190 24CA191 24CA199 24PN91 24PN95	--
Irrigation Systems	24PN88	24PN551	--
Historic Trash Dump	--	24PN62	--
Mining	--	24CA976	--
Historic Transmission Line	24CA1040	--	--

Note:
-- No reported site

Subcontracted personnel conducted an intensive pedestrian or Class III cultural resources inventory between May and November 2006 along much of Alternative 2 (Ferguson 2007). This inventory was conducted along undisturbed segments of Alternative 2. The intensive pedestrian cultural resource inventory was undertaken in areas of native grasslands, bases and edges of bluffs, stream terraces, and all Federal lands regardless of prior disturbance. The inventory covered a 500-foot-wide corridor centered on the proposed transmission line and a 100-foot-wide corridor along undeveloped access roads. The inventory process included analysis of visual effects on individual sites and cultural landscapes within one mile of the proposed centerline. Sites were recorded and evaluated for NRHP-eligibility according to SHPO standards. Tribal consultation was initiated by the lead Federal agency. All Class III information is summarized in **Table 3.14-2**.

TABLE 3.14-2
RESULTS OF CLASS III INVENTORY, ALTERNATIVE 2

Site Type	NRHP-Eligible	Unevaluated/Unresolved NRHP-Eligibility		Not Eligible (Consultant Recommendation)
Prehistoric Sites				
Tipi Ring Sites	24PN24[1]	24GL1120 24GL1121 24GL1125 24GL1126 24GL1127 24GL1132 24PN148 24PN150 24PN152 24PN153	24PN154 24PN156 24PN158 24PN159 24TT574 24TT575 24TT576 24TT577 24TT578 24CA1053	24PN112[3]
Buffalo Jump	--	24GL587		--
Multi-component sites	24PN5/24PN147[2]	--		--
	--	--		--
Historic Sites				
Historic Road/Trail	--	--		--
Railroads	24GL191[1]/24PN114[1]	--		--
Railroad/Stage Route	--	24PN34		--
Bridge	--	--		--
Homesteads/ Farmsteads/ Residences/ Structures	24PN149[2]	24GL1119		24GL1133[2] 24GL1134[2] 24GL1136[2] 24PN157[2]
Irrigation Systems	24PN83[1] 24PN88[1] 24PN109[1] 24PN111[1]	--		--
Historic Oil Camp	--	--		24GL1135[2]
Historic Trash Dump	--	--		24PN151[2]
Historic graffiti	--	--		24PN155[2]

Notes:
1 – Previous Consensus Determination
2 – Consultant Recommendation
3 – Site subjected to mitigative measures, no longer exists

A total of 10 previously recorded cultural resource sites are located within, or are crossed by, the 500 foot inventory corridor. Four of the previously recorded sites are prehistoric, one of which (24PN24) has been determined NRHP-eligible, one (24PN5/24PN147) is recommended eligible, the eligibility of one (24GL587) is unresolved, and one (24PN112) was destroyed following recording and testing as mitigative measures. Of the six previously recorded historic sites, four irrigation canals (24PN83, 24PN88, 24PN109, and 24PN111) and portions of the Great Northern Railway (24GL191/24PN114) have been determined NRHP-eligible; the eligibility of one, an historic travel route (24PN34), is unresolved. The Class III inventory also located 30 previously unrecorded cultural resource sites in the inventory corridor. The 21 prehistoric sites have not been evaluated for NRHP eligibility. Of the nine historic sites, one homestead (24PN149) is recommended NRHP-eligible, while seven of the remaining eight are recommended not eligible and the eighth is unevaluated.

3.14.3 Environmental Impacts

Paleontological Resources

As part of MATL's mitigation program, pre-construction reconnaissance would be conducted in areas where potential paleontological or fossil discovery exists. If found, fossil data would be recorded by trained professionals (with landowner permission). Under these conditions, the project may result in the beneficial impact of unknown or little studied fossils being discovered (MATL 2006).

Direct effects to paleontological resources from development projects such as the MATL proposed transmission line, include earthmoving or ground clearing activities, blasting of bedrock for tower foundations or access roads, boring for geotechnical surveys or placement of guy wires, and pedestrian or vehicular traffic. Indirect effects of projects such as the MATL transmission line include access to areas that were formerly not accessible. Access can lead to intentional damage to paleontological resources, such as unauthorized collecting, theft, and defacement, and result in the loss of information and destruction of the resource. An unanticipated discoveries plan that addresses discovery of paleontological resources in high probability areas during construction should be developed prior to project implementation.

Cultural Resources

Previous cultural resource inventories and/or recording of properties in the broader study area resulted in no properties listed in the NRHP being located on any of the alternative alignments. A segment of one NRHP-listed property, the Mullan Road (24CA89), is reportedly located in a section adjacent to the southern end of Alternatives 2 and 3 on the Benton Lake National Wildlife Refuge. This cultural resource site has never been located on the ground and formally recorded. It is recommended that if

either alternative is selected the area be thoroughly reviewed for intact portions of the property.

Nine cultural resource sites located along one or more of the alternative alignments are listed as NRHP-eligible by consensus determination in the SHPO CRIS system. One multi-component prehistoric site (24PN5/24PN147) is located along and near Alternative 2. One prehistoric tipi ring site (24PN24) is located along Alternatives 2 and 3. One historic road/trail (24CA416) and an historic railroad route (24GL191/24PN114), still in use, are crossed by Alternatives 2, 3, and 4. Historic irrigation systems (24PN109 and 24PN111) are crossed by Alternatives 2 and 3, while historic irrigation systems (24PN83 and 24PN88) are crossed by Alternatives 3 and 4.

The recommended treatment of either NRHP-listed or eligible cultural resource properties is avoidance, if at all possible, and protection. Many of the known, NRHP-eligible cultural resource sites within or crossed by the various alternatives are either limited in size or are linear sites. Direct impact to these sites can likely be avoided by adjusting the location of individual structures and roads.

Locations of Traditional Cultural Properties or potential locations identified by knowledgeable tribal members should be avoided. Traditional Cultural Properties or sacred sites are places that have traditional spiritual values for Montana Native people (Indian tribes or Indian religious practitioners) that are reverently dedicated to a person or object or event or activity and are secured against violation or infringement or interference.

In order to protect and preserve Indian religious practices, Executive Order 13007 and other laws and Executive orders of the U.S. Government place specific requirements on each executive branch agency with statutory or administrative responsibility for the management of Federal lands. Those agencies must, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners; avoid adversely affecting the physical integrity of sacred sites; and, where appropriate, maintain the confidentiality of sacred sites.

In the MFSA application, MATL stated that during a meeting Blackfeet Tribal representatives stressed the need to evaluate the proposed Project's potential to impact traditional landscape and land use values. Inclusion of tribal monitors during cultural surveys and/or review of cultural resource findings by THPO personnel were suggested to assist in appropriate treatment of prehistoric findings. In addition, MATL is addressing Tribal issues with an appropriate level of cultural survey established through MOUs (MATL 2006).

During the summer of 2007, ethnographers and consultants representing the Blackfeet Tribe reviewed the Class I and class III cultural resource inventory reports and conducted field visits of four prehistoric sites. The Blackfeet consultants found the sites containing stone alignments, tipi rings, rock piles or cairns, and bison remains of particular relevance. As they visited the sites they found ceremonial [mineral] paint sources, traditionally used plants, traditionally used animals and their habitats (e.g., eagle nests, horned toads), rocks and fossils, and old graves not previously recorded by the cultural resource crews. The Blackfeet consultants consider the study area holy not only because of a connection with a culture hero, but also because the cultural resources located throughout the area, all of which are considered significant, are integral to Blackfeet culture and identity and to the future education of their children. Their recommendation is that all identified prehistoric cultural resources be avoided (Zedeño et al 2007).

Cultural resource properties and Traditional Cultural Properties where the NRHP eligibility is unknown, has not been determined, or is unresolved can either be avoided, if possible, or subjected to sufficient investigation to determine or resolve eligibility. In their report, the Blackfeet consultants recommended recording and mapping of possible stone effigies at sites 24PN150 and 24PN24 and they recommended excavation and documentation of any feature to be disturbed at sites that cannot be avoided. They further recommended that Blackfeet elders and monitors be hired and present during any excavations and any recovered artifacts be curated with the Blackfeet Tribe (Zedeño et al 2007).

If Alternatives 2, 3 or 4 are selected, then unevaluated cultural resource properties and Traditional Cultural Properties along the route should be individually evaluated in terms of Project effect. In addition, an intensive cultural resource inventory of areas not previously inventoried to Montana SHPO standards is necessary to comply with regulations in the Montana Antiquities Act, as amended (1995). Portions of a selected alternative along or within one-half mile of rivers, flowing streams, lakes, springs, or seeps should be considered high probability areas especially for prehistoric cultural resource sites and Traditional Cultural Properties. Such areas may also be more likely to contain historic sites, although intact homesteads may be more broadly distributed based on the system of patenting land in the late nineteenth and early twentieth centuries. Certain topographic features, such as those conducive to buffalo jump sites or high points for observation, should also be considered likely areas to contain prehistoric sites and Traditional Cultural Properties.

Areas least likely to contain cultural resource sites or NRHP-eligible sites are those areas far from reliable water and those areas where food or tool making resources would not occur. While areas subjected to plowing for farming may be less likely to contain intact cultural resource sites, plowed areas of well- developed soil may still contain intact prehistoric cultural resources.

Direct effects to cultural resource sites from development projects such as the MATL proposed transmission line include earthmoving or ground clearing activities and pedestrian or vehicular traffic. There is the potential for visual impacts to above-ground resources, such as historic buildings or houses. Indirect effects of projects such as the MATL proposed transmission line include soil erosion from earthmoving activities and access to areas that were formerly not accessible. Access can lead to intentional damage to cultural resource sites such as looting and vandalism, including unauthorized relic collecting, theft, and defacement, and result in the loss of information and destruction of the resource. An unanticipated discoveries plan that addresses discovery of artifacts or cultural resource sites during construction should be developed prior to project implementation.

3.14.3.1 Alternative 1 – No Action

Under the No Action Alternative, the proposed Project would not be constructed. Thus there would be no impacts to cultural resources or any Traditional Cultural Properties.

3.14.3.2 Alternative 2 – Proposed Action

The Class 1 cultural resource searches resulted in the identification of six previously recorded sites considered eligible for the NRHP in sections along Alternative 2. These sites include the Rainbow Dam Road, the Burlington Northern-Santa Fe Railroad, one other historic railroad, a large tipi ring site, and two historic irrigation systems. There are 12 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes four tipi ring sites, two buffalo jump sites, a prehistoric site consisting of stone cairns, two historic roads or trails, a railroad, a bridge, and a homestead. There is one previously recorded tipi ring site that was determined not eligible for the NRHP.

The Class III inventory, which was only conducted along undisturbed segments of Alterative 2, resulted in the relocation of seven previously recorded cultural resources sites considered NRHP-eligible. These include a large tipi ring site, multi-component prehistoric site, the Burlington Northern-Santa Fe Railroad, and four historic irrigation systems. A newly recorded historic homestead is recommended NRHP-eligible. There are 21 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes 20 tipi ring sites, one buffalo jump site, one historic railroad or stage route, and a homestead. There is one previously recorded tipi ring site that was tested and destroyed and is no longer considered eligible for the NRHP. There are seven historic sites recommended not eligible for the NRHP.

3.14.3.3 Alternative 3 – MATL B

The Class 1 cultural resource searches resulted in the identification of seven previously recorded sites considered eligible for the NRHP in sections along Alternative 3. These sites include the Rainbow Dam Road, the Burlington Northern-Santa Fe Railroad, one other historic railroad, a large tipi ring site, an historic oil refinery, and two historic irrigation systems. There are nine sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes two tipi ring sites, two buffalo jump sites, a prehistoric site consisting of stone cairns, an historic bridge, a homestead, and two sites only described as historic. There are two previously recorded homestead or residence sites that were determined not eligible for the NRHP.

3.14.3.4 Alternative 4 – Agency Alternative

The Class 1 cultural resource searches resulted in the identification of four previously recorded sites considered eligible for the NRHP in sections along Alternative 4. These sites include the Rainbow Dam Road, an historic transmission line, an historic irrigation system, and the Burlington Northern-Santa Fe Railroad. There are 19 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes six tipi ring sites, two lithic scatter sites, two prehistoric camp sites, an historic road or trail, five homesteads, one historic irrigation systems, one historic trash dump, and one historic mining site.

Two NRHP-eligible sites, 24CA416 the Rainbow Dam Road and 24CA1040 an historic transmission line just north of the Missouri River, are located in sections along Alternative 4. The sections crossed by Alternative 4 contain three of the tipi ring sites, the two lithic scatter sites, the two prehistoric camp sites, three of the homesteads, and the historic mining site in the category of undetermined, unknown, or unresolved NRHP eligibility.

One section along Alternative 4 contains one tipi ring site of undetermined NRHP eligibility. Several sections along Alternative 4 contain two of the tipi ring sites, two of the homesteads, the historic irrigation system, and the one historic trash dump in the category of undetermined, unknown, or unresolved NRHP eligibility.

Two sections along Alternative 4 contain the historic road or trail and the historic irrigation systems both of undetermined NRHP eligibility. Two additional sections along Alternative 4 contain the NRHP-eligible Site 24GL191, the Great Northern Railway – now part of the Burlington Northern-Santa Fe.

3.15 Visuals

3.15.1 Analysis Methods

Analysis Area

The visual resource analysis was developed using a resource analysis area 3 miles on either side of the proposed transmission line alternatives for reasons discussed in Section 3.15.3.

Information Sources

Visual resources refer to the natural and man-made features in the resource analysis area and include cultural and historic landmarks, landforms of particular beauty or significance, water surfaces, and vegetation. Together, these features form the overall impression that a viewer receives of an area or its landscape character.

Data and information for this section were compiled and refined from a variety of sources and verified by ground reconnaissance by Montana Alberta Tie, Ltd. during July and August 2005. Additional ground reconnaissance was conducted during May 2006 by DEQ and Tetra Tech. Additionally, aerial photographs were used to validate, change, or add to existing CAMA residential location information. Some of this information was originally compiled by AMEC Earth and Environmental for the MFSA application (MATL 2006b) and confirmed for use in this analysis.

Visual environmental impacts were analyzed in part by using computer generated photographic simulations. Technical information about these photographic simulations is provided in **Appendix L**.

3.15.2 Affected Environment

Landscape Character

The Project area is located in the Northwestern Glaciated Plains ecoregion (Nesser and others 1997) and is characterized by level to gently rolling glaciated plains crossed by alluvial corridors of the Marias and Teton rivers and their tributaries. Both dryland cultivation and irrigated cropland are common throughout the Project area (Montana Environmental Quality Council 1972). This agricultural land base gives the landscape its characteristic and dominant patterns of linear strips and blocks of dryland cultivation and circular and rectangular shapes associated with irrigated fields. Field colors that change seasonally among greens, yellows, and browns accentuate these strong landscape patterns. Scattered parcels of rangeland and native grassland found

in steeper coulees and rough terrain throughout the Project area provide additional color and texture in the viewed landscape.

Alluvial floodplains of the Marias and Teton rivers provide more topographic relief and diverse vegetation than surrounding uplands and plains. Mature cottonwood stands, riparian undergrowth of willows, boxelder, and chokecherry, eroded rock formations on valley walls, and meandering river channels contribute to a higher scenic quality in these floodplain corridors. In addition to these alluvial corridors and rivers, area lakes such as Benton and Hay lakes and Black Horse Lake, which is ephemeral, provide another type of water feature in the Project area. Scattered prairie potholes and wetlands dominated by trees, shrubs, emergents (cattails, bulrush), mosses, or lichens are also found in the Project area.

The cultivated and rural landscape provides the dominant cultural setting for the Project area. Rural farms and ranches dot the landscape, increasing in density where irrigation is present. Developed commercial and residential settings are found at small communities like Power, Dutton, and Brady, and the larger communities of Cut Bank and Conrad. Great Falls, at the southern edge of the Project area, is the only urban setting. Visual linear elements, including Interstate 15, state and local roads, railroads, and transmission lines crisscross the region, providing transportation and energy links for residents and commercial use. Other cultural modifications include the scattered oil and gas fields in the northern portion of the Project area and radio towers near Cut Bank and Great Falls. Dryland and irrigated cultivation are visually dominant throughout the Project area. Although cultural modifications and industrial development are present and visible in typical views, these modifications are typically subordinate to the predominant agricultural landscape.

Views are typically expansive throughout the entire Project area, extending across rolling uplands and plains to the Rocky Mountain Front and island ranges such as the Sweet Grass Hills and Highwood Mountains. Only in the alluvial valleys of the Teton and Marias rivers, their tributaries, and in steep coulees with some degree of topographic relief do views become more enclosed and limited.

Landscape Rating Units and Scenic Quality

The analysis area has been subdivided into landscape units for rating purposes (MATL 2006b). The rating areas (provided below) were delineated on a basis of: (1) similar physiographic characteristics; (2) similar visual patterns, texture, color, variety, and other features; and (3) areas that have similar impacts from man-made modifications. The landscape ratings and scenic quality assessments are based on a visual quality analysis methodology based on BLM methodology (BLM 1984).

The scenic quality of each of the landscape units is provided at the end of each unit description. Scenic quality is a measure of the visual appeal of a tract of land or scenic quality rating unit. Scenic quality rating units can be assigned an A (outstanding), B (above average), or C (common) rating based on the apparent scenic quality, which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications (BLM 1984). No Class A areas are present. Those areas classified as Class B are shown on **Figures 3.15-1, 3.15-2,** and **3.15-3**.

Alluvial Corridors
This unit constitutes narrow strips of land following coulees, creeks, and major rivers crossing the visual analysis area. The unit is moderately diverse in terrain, vegetation, and water features. Corridors along coulees and creeks in the analysis area are designated as Class C because their landform and vegetation are fairly common in the analysis area. The Marias River corridor and the Teton River corridor are designated as Class B due to floodplains, diverse vegetation patterns, river meanders, and topographic relief present in the setting.

Wetland Areas
Wetlands found in the visual analysis area include:

- permanently flooded lakes and reservoirs, and intermittent lakes;
- wetlands found along creek channels and coulees and in association with prairie potholes; and
- wetlands that have natural or artificial channels and periodically or continuously flowing water such as the permanently flooded river channel bottoms associated with the Marias and Teton rivers.

Figure 3.6-1, 3.6-2, and 3.6-3 show the locations of all mapped wetlands within the MATL Project study area. Most wetlands provide diverse vegetation and have low landform diversity and are designated as Class C. The wetlands associated with the Marias and Teton Rivers are designated as Class B because they contain a combination of diverse vegetation and a water feature.

Rims, Ridges, and Buttes
Several rims, ridges, and buttes occur in the Project study area. Prominent features include Lookout Butte, Abbott Ridge and Trunk Butte south of Cut Bank, West Knob and East Knob north of the Teton River in Chouteau County, Teton Ridge, and the Sun River/Missouri River Rim in the southern Project study area. These features are designated Class C because they offer less vegetation diversity than the Class B areas shown on **Figures 3.15-1**, **3.15-2**, and **3.15-3** and little visual variety.

N

0 4 Miles

Dutton

Woods Crossing

Power

Benton Lake National Wildlife Refuge

Vaughn

Great Falls

15

87

RS

FIGURE 3.15-1 LOCATIONS OF VISUAL IMPORTANCE SOUTH

LEGEND

- HOUSES WITHIN 1/4 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/4 AND 1/2 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/2 AND 1 MILE OF ANY ALTERNATIVE
- LEWIS AND CLARK CAMPSITES
- RECREATION SITES
- LEWIS AND CLARK TRAIL
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- VISUAL QUALITY CLASS B AREAS
- BENTON LAKE NATIONAL WILDLIFE REFUGE
- LANDS MANAGED BY MT DEPT. FISH, WILDLIFE AND PARKS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-1_MATL_visual_mpacts_south_part_012007.mxd

Shelby
Valier
Ledger
Conrad
Brady
Collins
Dutton
2
15
44RS
N
0
4
Miles

FIGURE 3.15-2
LOCATIONS OF VISUAL IMPORTANCE MIDDLE

LEGEND

- HOUSES WITHIN 1/4 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/4 AND 1/2 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/2 AND 1 MILE OF ANY ALTERNATIVE
- LEWIS AND CLARK CAMPSITES
- RS RECREATION SITES
- LEWIS AND CLARK TRAIL
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- VISUAL QUALITY CLASS B AREAS
- BENTON LAKE NATIONAL WILDLIFE REFUGE
- LANDS MANAGED BY MT DEPT. FISH, WILDLIFE AND PARKS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-2_MATL_visual_impacts_middle_part_012007.mxd

N

0 4 Miles

Sunburst

Kevin

Santa Rita

RS

Cut Bank

Ethridge

Shelby

Valier

FIGURE 3.15-3 LOCATIONS OF VISUAL IMPORTANCE NORTH

LEGEND

- HOUSES WITHIN 1/4 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/4 AND 1/2 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/2 AND 1 MILE OF ANY ALTERNATIVE
- LEWIS AND CLARK CAMPSITES
- RS RECREATION SITES
- LEWIS AND CLARK TRAIL
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- VISUAL QUALITY CLASS B AREAS
- BENTON LAKE NATIONAL WILDLIFE REFUGE
- LANDS MANAGED BY MT DEPT. FISH, WILDLIFE AND PARKS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-3_MATL_visual-impacts_north_part_012007.mxd

Uplands and benchlands
Uplands and benchlands comprise the majority of the Project study area. Benchlands are characterized by gently sloping terrain, expansive views, and cropland use. They occur predominantly in the center of the Project study area between the Marias River and Pondera Coulee and in the northern part of the study area associated with Kevin Rim. Rolling uplands with a fairly uniform landscape of gently sloping wheat fields and grassland constitute the remainder of the Project study area. These landscapes are designated Class C because their landforms, vegetation, and cultural modifications are common to the analysis area.

Existing Inventories

Federal and state land managers and local/county officials have not developed maps that establish an inventory of scenic attractiveness, distance zones or concern levels, scenic classes, and visual absorption capability for any portion of the Project study area.

Travel Routes

Travel routes include the primary and secondary roads shown in **Figures 3.15-1**, **3.15-2**, and **3.15-3**.

3.15.3 Environmental Impacts

Distance Zones and Visual Influence Zones

Distance zones were established based on thresholds for visual perception of form, texture, color, and line (BLM 1984). These visual criteria change as distance from a viewpoint increases. Detailed elements on the landscape tend to become less obvious and detailed at longer viewing distances. Elements of form and line become more dominant than color and texture at longer viewing distances. Four distance zones were established:

- Immediate Foreground (0 to 0.25 mile) — The immediate foreground is the dominant view threshold. Details are easily perceived and obvious. Changes may dominate the landscape.
- Foreground (0.25 to 0.5 mile) — The foreground is the viewed area in which details are perceived and obvious, though less so than the immediate foreground.
- Middleground (0.5 to 1 mile) — The middleground is the zone where details of foliage and fine textures are less perceptible. Vegetation begins to appear as patterns. Form and line are more dominant visual elements.

- Background (1 to 3 miles) — The background is the portion of the landscape where texture is weak and landform becomes the most dominant element.

Impact Types and Levels

Most visual impacts are direct and long term. The major impact concern assessed by the visual resources study is the potential for a decline in aesthetic quality. Visual impact types evaluated include the following:

- Effects on scenic quality
- Effects on views from residential, commercial, institutional, and other visually sensitive land uses (existing and planned)
- Effects on views from travel routes
- Effects on views from established, designated or planned park or recreation areas
- Visual contrast resulting from different structure types and/or materials, and construction of new access trails

Determination of potential impacts and levels was based on assessing: (1) physical contrasts or landscape changes that would result from the project and (2) the degree of visibility that the project would have from each sensitive land use or scenic area (key observation points) (DOE 1986). Visibility levels for key observation points were determined by assessing viewer sensitivity, distance from the proposed Project, and duration of views. The impact levels for areas with a current non urban area land use are described below. **Table 3.15-1** provides a summary of the impact levels for various observation points.

Major Impact – A high level of impact would result if the construction and operation of the transmission line would potentially cause substantial adverse change to viewers at residential and designated recreation sites or result in substantial and noticeable landscape alteration in areas of above average or outstanding visual quality. Generally, structures within the immediate foreground and foreground (½ mile) of residences, immediate foreground of recreation sites, or within areas of Class B scenic quality would result in a major impact. Structures within the immediate foreground or foreground of primary use travel corridors would result in a major impact.

Minor Impact – A minor level of impact would result if the construction and operation of the transmission line would potentially result in a noticeable landscape alteration in areas of average visual quality to viewers at residences, designated recreation sites (including the Lewis and Clark trail corridor), or along travel corridors. Generally, structures within the foreground (¼ to ½ miles) of recreation sites and within the middleground (½ to 1 mile) of residences would result in a minor impact. Structures

within the middleground of primary use travel corridors would result in a minor impact.

Very Minor Impact – A very minor impact is the result of a small degree of landscape alteration in areas of average or common visual quality. Views of the transmission line within the middleground and background of recreation sites, within the background of primary use travel corridors, within the background of residences, or within middleground and background of secondary use travel corridors would result in a very minor impact.

Residences, recreation sites, travel corridors, and areas with Class B scenic quality within 1 mile of Alternatives 2 through 4 are shown in **Figures 3.15-1** through **3.15-3**. The remainder of the natural landscape in the Project study area – including uplands, benchlands, rims, ridges, buttes, and wetlands – has generally lower landscape and viewer sensitivity.

TABLE 3.15-1
VISUAL IMPACT LEVELS FROM VARIOUS OBSERVATION POINTS[a]

Observation Points[a]	Immediate Foreground (0 – ¼ mile)	Foreground (¼– ½ mile)	Middleground (½ - 1 mile)	Background (> 1 mile)
Residential	Major	Major	Minor	Very Minor
Recreation	Major	Minor	Very Minor	Very Minor
Travel – Primary Roads	Major	Major	Minor	Very Minor
Travel – Secondary Roads	Minor	Minor	Very Minor	Very Minor

Notes:
[a] A transmission line going through a Class B scenic quality area would be a major impact.

3.15.3.1 Alternative 1 – No Action

There would be no additional visual impacts under the No Action alternative.

3.15.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Table 3.15-2 summarizes the proximity of various observation points to the alternatives. These observation points include area residences, recreational sites, and Class B scenic areas that fall within the immediate foreground, foreground, and middleground of each alternative centerline. In addition, the miles of major highways that fall within the immediate foreground, foreground, and middleground of each alternative centerline are provided. **Figures 3.15-1, 3.15-2**, and **3.15-3** provide a visual overview of the data provided in **Table 3.15-2**.

TABLE 3.15-2
COMPARISON OF DISTANCE ZONES FROM VARIOUS OBSERVATION POINTS[a]
Action Alternatives 2, 3, and 4

Alternative[b]	Number of Residences (Points)			Recreation – General[c] (Point)			Recreation - L & C Trail (Lineal Mileage)			Travel Corridor[d] (Lineal Mileage)		
Miles	0 to 1/4	1/4 to 1/2	1/2 to 1	0 to 1/4	1/4 to ½	1/2 to 1	0 to 1/4	1/4 to 1/2	1/2 to 1	0 to 1/4	1/4 to 1/2	1/2 to 1
Alternative 2	20	51	111	1	2	NA[e]	7.94	3.39	NA	3.3	2.8	6.3
Alternative 3	25	65	139	0	3	NA	7.72	2.3	NA	3.7	3.9	8.2
Alternative 4	20	45	111	0	0	NA	6.51	2.85	NA	2.7	2.3	5.3

Notes:
[a] Local Routing Options are not included in this table. Their impacts are discussed in Section 3.16.3.
[b] All action alternatives would cross the Marias River and Teton River, which are Class B scenic areas.
[c] Does not include the conservation easement located north of the Missouri River at Great Falls Switchyard (Lewis and Clark Greenway Conservation Easement).
[d] Interstate 15 and U.S. Highways 2 and 87
[e] NA = Not available

Residential Areas – Long Term

Residences are located within the immediate foreground and foreground of the centerline of each action alternative. As **Table 3.15-2** indicates, Alternative 4 would have the least number of residences (65) within ½ mile. Alternative 2 would have the second least (71). Alternative 3 would have the highest number of residences within ½ miles (90). As a result, the overall long-term impact for residences that would be classified as a major impact would be the highest for Alternative 3 and the lowest for Alternative 4. The long-term impact for residences that would be classified as minor (within ½ to 1 mile of an alternative centerline) would be highest for Alternative 3 (124 residences) and lowest for Alternative 2 (91 residences) (DOE 1986). No residential clusters are located within the immediate foreground or foreground of any of the alternatives.

Recreation Areas – Long Term

All three action alternatives would cross the Lewis and Clark National Historic Trail and the Teton and Marias river corridors. All action alternatives would also be within the foreground of the Missouri River Corridor and several developed recreation areas near Great Falls including Giant Springs State Park, the Lewis and Clark Interpretive Center, and the Lewis and Clark Heritage Greenway. Alternative 2 crosses the south and west edges of the Great Falls Shooting Sports Complex located north of Great Falls; Alternative 3 crosses to the west of the complex. Both Alternatives 2 and 3 cross within the foreground of Benton Lake National Wildlife Refuge. The Lewis and Clark National Historic Trail is paralleled and crossed by all alternatives between the Marias River and Cut Bank (Class B scenery). Other recreation areas considered, but not within the foreground, include wildlife production areas, research natural areas, and other sporting venues/complexes (for example, golf courses, race tracks, rodeo arenas, city parks) located along alignment alternatives near Cut Bank, Conrad, and Great Falls. Although the proposed transmission line would be within the foreground of several recreational areas in the Great Falls area, the proposed transmission line would be an additional line in a setting with many transmission lines and a substation. The visual effect of an additional line would be incremental.

As shown in **Table 3.15-2**, Alternative 4 would not have any recreational sites within ½ mile of the alignment. Alternatives 2 and 3 would each have three recreation sites within ½ mile; however, one site (Morony entrance to the Great Falls Shooting Sports Complex) would be less than ¼ mile from Alternative 2 only. Under the matrix used for this assessment, a transmission line within ¼ mile of a recreational site is classified as a major impact but because surrounding scenery is not an important contributor to the recreation experience at the Shooting Sports Complex, the impact would likely be minor (DOE 1986).

Travel Routes – Long Term

Major travel routes that were considered include: Interstate 15 and U.S. Highways 2 and 87. Each of these highways would be crossed by each action alternative. The action alternatives differ slightly in the lineal miles of proposed alignment that would be within ½ mile of these major travel routes. Alternative 2 would have 11.3 miles within ½ mile, Alternative 3 would also have 11.3 miles within ½ mile, and Alternative 4 would have 9.4 miles (**Table 3.15-2)**. A transmission line within ½ mile of a major travel route is classified as a major impact because it would result in highly visible contrast with the surrounding landscape (BLM 1984).

A computer generated visual simulation was developed showing the proposed line looking northwest from Montana State Highway 44, also known as Bootlegger Trail (**Figure 3.15-4**). Though not a high volume road (major travel route), this viewpoint on Bootlegger Trail is typical of views from secondary roads. Because monopoles would be used on approximately 56 miles of diagonal alignment that would cross cultivated land, the computer generated view incorporates monopole structures (**Figure 3.15-5)**. Many road crossings would have monopole structures but some would incorporate H-frame structures. While monopole structures would typically be about 25 feet taller than H-frame structures, the ruling span length would be similar for both structure types (**Figure 2.3-5**). The monopole visual impact levels would be comparable to H-frame visual impact levels.

Visual impacts on all major travel routes would be comparable for all action alternatives with major impact levels for the immediate foreground and foreground viewing areas (DOE 1986). The MATL 230-kV transmission line would cross secondary roads seven times under Alternative 2, seven times under Alternative 3, and six times under Alternative 4. Visual impacts on all secondary road crossings would be minor.

Landscape Alteration – Long Term

The visual contrast of the proposed transmission line would be based on varying levels of potential landform and vegetation alteration that would result from construction. Landform contrast would result where access roads and pads for structure erection are constructed in hilly or steep terrain. Hillside benching, exposure of subsoil, and erosion scars from project construction in steeper terrain could modify existing topography and soils, resulting in visual contrast that is long term. These effects are more likely to occur on steeper slopes near the crossings of the Marias and Teton rivers, compared to surrounding uplands and plains. However, the transmission line structures would be located so that no roads need to be constructed over the edge of cliffs along the Marias River. Some road building is anticipated on the south side of the Teton River. **Figure 3.15-6** shows a computer generated visual simulation of an H-frame power line crossing the Marias River. Based on the crossing of rivers corridors with Class B scenic quality, the potential impact for all action alternatives would be major (DOE 1986).

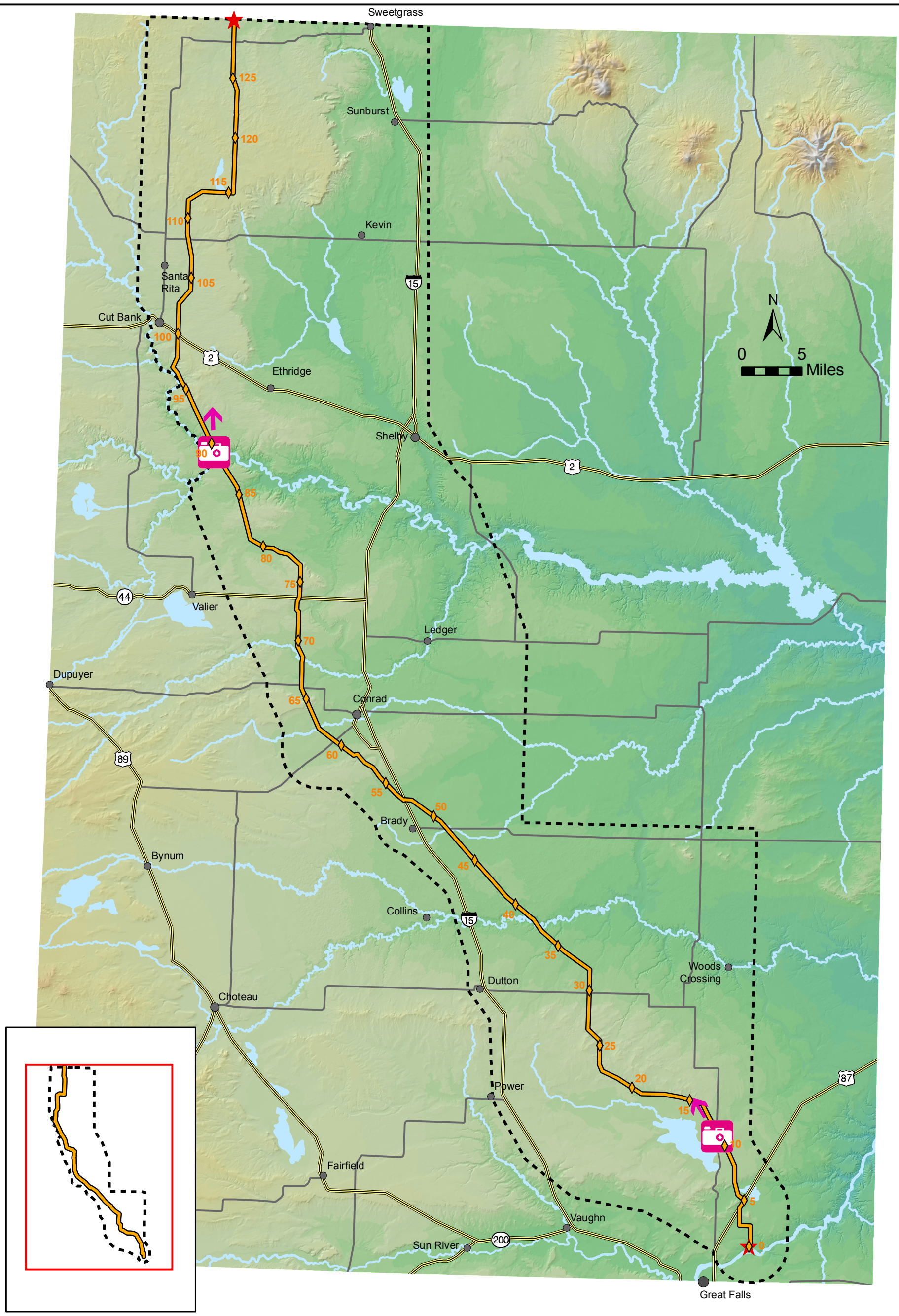


FIGURE 3.15-4
VISUAL SIMULATION LOCATIONS

LEGEND

- ALTERNATIVE 2 - ALIGNMENT
- MILEPOSTS
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-4_MATL_Visual_Simulation_Locations_012007.mxd



FIGURE 3.15-5
PROPOSED MATL POWERLINE
BOOTLEGGER TRAIL - Visual Simulation of Monopole Construction
(Lat/Long: 47.679944, -111.283055 - 05/31/06 10:00 a.m.)

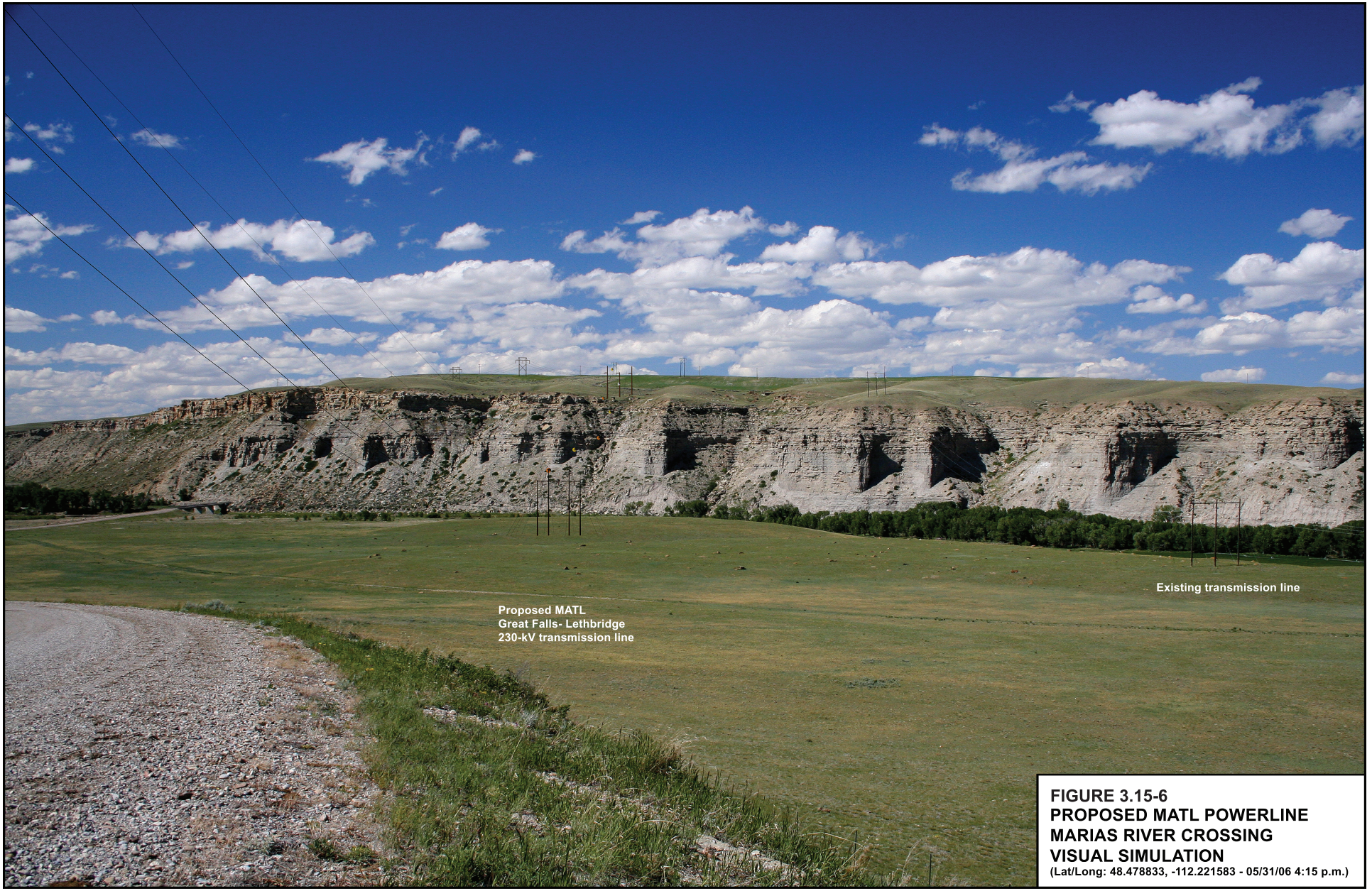


FIGURE 3.15-6
PROPOSED MATL POWERLINE
MARIAS RIVER CROSSING
VISUAL SIMULATION
(Lat/Long: 48.478833, -112.221583 - 05/31/06 4:15 p.m.)

Successful implementation of reclamation and revegetation efforts and the avoidance of dense riparian vegetation at the proposed river crossings would decrease the impact to minor levels (DOE 1986).

Vegetation contrast is a function of existing cover type (riparian forest, grassland, or agricultural cropland) and the amount of clearing needed for line construction and maintenance. Higher levels of vegetation contrast would result where woody riparian growth is removed from the right-of-way, structure sites, and access roads. This effect can be long term where mature trees, windbreaks, and other woody vegetation are trimmed or removed for line operation over the life of the project.

Visual Impacts — Short Term

In agricultural cropland, vegetation would be removed for one growing season as structures are erected and construction traffic uses access roads. This effect would likely be short term for all action alternatives as crops would be restored in the following year.

Visual Resource Mitigations

To minimize adverse environmental impacts to visual resources from Alternative 2 and address local visuals issues in specific places, DEQ identified several potential mitigation realignments that are described in **Appendix A.** The agency's preliminary analysis of the environmental impacts is in that appendix.

3.15.3.3 Local Routing Options

Analysis of the impacts of the Local Routing Options is in Section 3.16.

3.16 Local Routing Options

Issues raised during the public comment period are summarized in Chapter 1 and formal responses to these comments are provided in Volume 2 of this document. Throughout the review process, the agencies worked with landowners to refine Alternative 2 and developed 11 Local Routing Options addressing local concerns. Since the publication of the Draft EIS, the agencies have identified four minor variations to the Local Routing Options and one variation to a segment of Alternative 2. These variations are intended to help mitigate and minimize impacts to existing and future land uses in this area. These variations are described in Sections 2.6.1 (Diamond Valley Area), 2.6.5 (Northwest of Conrad), 2.6.6 (Belgian Hill Area), 2.6.8 (South of Cut Bank), and 2.6.9 (Great Falls 230-kV Switchyard Area). Several of these variations could also be applied to some parts of Alternative 4. **Figure 2.6-1** provides the general locations for the Local Routing Options, the variations to the Local Routing Options, and one variation to Alternative 2. The Local Routing Options and variations address the required finding under MFSA that the facility minimize adverse environmental impacts considering the state of available technology and the nature and economics of the various alternatives (75-20-301(1)(c), MCA).

The Local Routing Options and variations are described in Section 2.6. Local Routing Options could be adopted as part of either Alternative 2 or 4 in the following areas: Diamond Valley, Teton River Crossing, a portion of the Belgian Hill road, and South of Cut Bank.

3.16.1 Analysis Methods

Potential impacts to all resources were analyzed for the 11 Local Routing Options and variations. For many resource areas, the impacts associated with Local Routing Options and the portions of Alternatives 2 or 4 they could replace would be very similar. The resource areas most affected by the Local Routing Options are land use and visuals, which are the primary reasons that the routing options were developed. Each Local Routing Option is considered only in relation to the comparable portion of Alternative 2 or 4 it could replace.

Analysis Area

The analysis areas for the Local Routing Options are the immediate areas where they are located.

Information Sources

Information sources used to analyze the Local Routing Options came from field and air photo review and discussions with interested landowners. This information was supplemented by data from the MFSA application, as necessary.

3.16.2 Affected Environment

The affected resource environments for the Local Routing Options are discussed in the applicable resource area sections of Chapter 3. For most resource areas, the affected environment is very similar, if not identical, to the affected environment described in the main resource area sections. The Local Routing Options and variations are all located within the same Project study area.

3.16.3 Environmental Impacts

Section 2.6 summarizes the major differences in location between each Local Routing Option and the corresponding segment of Alternatives 2 or 4. This impacts analysis focuses on the issues identified in comments: potential land use effects and costs associated with farming around structures. These costs are compared to the additional cost of line construction for a routing option. The following section discusses these differences and similarities, and the construction costs are summarized in **Table 3.16-1**.

Several resource areas have very similar impacts between the Local Routing Options and corresponding portions of either Alternative 2 or 4. Unless specifically mentioned, potential effects to these resource areas are not discussed further: geology and soils, engineering and hazardous materials, water resources, wetlands and floodplains, fish resources, threatened and endangered species and candidates for listing, noise, and air quality. Overall, the Local Routing Options would not result in socioeconomic impacts substantially different than those described in Section 3.13.3. However, at the local level several of the proposed options could reduce costs of farming around new structures, and, in some cases, these reduced farming costs would likely outweigh the additional cost of line construction as indicated in **Table 3.13-15**.

All Local Routing Options avoid residences sufficiently so that the State standard for electric fields of 1 kV/m and the State standard for noise of 50 dBA at the edge of the right-of-way in residential and subdivided areas would be met. In addition, the newly recommended magnetic field standard of 1.4 mG would also be met at these residences.

TABLE 3.16-1
DIFFERENCES BETWEEN LOCAL ROUTING OPTIONS AND ALTERNATIVE 2[a]

No.	Local Routing Options	Crossing Cropland		Construction Cost[d]	Residences up to ¼ mile from Local Routing Option	Residences ¼ to ½ miles from Local Routing Option	Other Issues
		Diagonal[b] Miles Approximate	Parallel & Perpendicular[c] Miles Approximate				
Var[e]	Great Falls Approach	0 (0.28)	2.63 (2.82)	$1,627,290 ($1,207,080)	5 (2)	9 (12)	
1	Diamond Valley South	0.3 (4.22)	5.54 (1.07)	$2,422,470 ($1,961,895)	0 (2)	2 (0)	
2	Diamond Valley Middle	0.84 (4.22)	5.86 (1.07)	$2,249,515 ($1,961,895)	0 (2)	3 (0)	
3	Diamond Valley North	0.4 (4.22)	6.25 (1.07)	$2,302,500 ($1,961,895)	0 (2)	1 (0)	One grain bin may have to be moved
Var[e]	Diamond Valley Landowner (variation)	4.59 (4.22)	0.59 (1.07)	$1,912,920 (1,961,895)	1 (2)	3 (0)	
4	Teton River Crossing	0.17 (0.63)	0.11 (0)	$266,825 ($237,980)	0 (0)	0 (0)	Avoids an infrequent flooded area and uses field edges.
5	Southeast of Conrad	1.08 (2.23)	0 (0)	$886,205 (927,675)	1 (1)	1 (2)	
6	West of Conrad	0 (1.35)	1.3 (0)	$575,260 ($464,255)	0 (0)	2 (0)	
7	Northwest of Conrad (variation)	0.25 (1.3)	1.21 (1.13)	$859,400 ($835,350)	0 (0)	2 (1)	
8	Belgian Hill (Alt 2) (variation)	0.5 (0.26)	1.66 (1.55)	$699,730 ($721,525)	1 (4)	2 (0)	
	Belgian Hill (Alt 4)[f]	0.35 (0.5)	0.69 (1.4)	$294,585 ($335,300)	1 (1)	1 (1)	

TABLE 3.16-1 (Cont.)
DIFFERENCES BETWEEN LOCAL ROUTING OPTIONS AND ALTERNATIVE 2[a]

No.	Local Routing Options	Crossing Cropland		Construction Cost[d]	Residences up to ¼ mile from Local Routing Option	Residences ¼ to ½ miles from Local Routing Option	Other Issues
		Diagonal[b] Miles Approximate	Parallel & Perpendicular[c] Miles Approximate				
9	Bullhead Coulee South	0.56 (0.62)	0.4 (0)	$505,690 ($422,555)	0 (0)	1 (1)	Over 500 feet from planned wind turbine
10	Bullhead Coulee North	1.16 (1.52)	0.48 (0)	$522,555 ($525,630)	0 (0)	0 (0)	
11	South of Cut Bank (variation)	0 (0)	0 (0.67)	$654,505 ($677,985)	1 (1)	3 (3)	

Notes:
[a] In this table where two numbers are listed, the first is for the Local Routing Option, followed by a number in parentheses for the Alternative 2 comparative length, cost, or count.
[b] Diagonal to due north, south, east, or west.
[c] Parallel to north and south (+-5 due north or south). Perpendicular to north and south (+-5 due east or west).
[d] Based on $239,500 per mile for H-frames and $326,500 per mile for monopoles. Cost of angle structures were not included in these figures.
[e] Minor variations.
[f] Alternative 4 could include some of the Local Routing Options listed above but would use only a portion of the Belgian Hill Local Routing Option. If the Belgian Hill Local Routing Option is used with Alternative 2, it would be 1.93 miles long compared to 1.05 miles if used with Alternative 4.

3.16.3.1 Diamond Valley Area

As indicated in **Figure 2.6-2**, the Diamond Valley South routing option would avoid diagonal crossing of farmland and residences by at least ¼ mile. In the northeast corner of Section 7, T24N, R2E where this routing option diagonally crosses a field, the guyed angle structures would be located in range and pasture lands. Diamond Valley South would have two residences between ¼ and ½ mile from the centerline. The corresponding segment of Alternative 2 would have two residences between 0 and ¼ mile. It would be about 1.7 miles longer than Alternative 2 and would cost about $460,575 more to construct.

The Diamond Valley North routing option (**Figure 2.6-2**) also would avoid diagonal crossing of farmland and residences by at least ¼ mile. Diamond Valley North would have one residence between ¼ and ½ mile from the centerline. The corresponding segment of Alternative 2 would have two residences between 0 and ¼ mile. The Diamond Valley North realignment would cross the existing NWE 115-kV line twice, creating potentially non-sprayable areas in fields where the two lines are in close proximity and create an acute angle. This realignment would be located near a single grain bin that might have to be moved if too close to the transmission line. If the grain bin is not moved, the centerline might need to be adjusted to the west sufficiently to allow grain augers to be used safely and to meet NESC requirements. The Diamond Valley North realignment would be approximately 1.3 miles longer than Alternative 2 and would cost $340,605 more to construct plus potential costs to move the grain bin.

The Diamond Valley Middle routing option would follow field boundaries to reduce diagonal crossing of cultivated land compared to Alternative 2 (**Figure 2.6-2**). This option would have three residences between ¼ and ½ mile from the centerline whereas, the corresponding section of Alternative 2 would have two residences less than ¼ mile away. Diamond Valley Middle is an applicant-suggested routing option. This routing option would potentially result in several areas in fields where it would have angular approaches to the existing NWE 115-kV line (primarily Section 25 T25N, R1E) and make farming operations difficult. It would be about 1.4 miles longer than Alternative 2 and would cost $287,620 more to construct.

The Diamond Valley Landowner minor variation to the Local Routing Option was supported by landowners only if MATL made an extra easement or other payment. It still crosses fields diagonally for about 5.17 miles and is 0.11 mile longer than Alternative 2. There is not landowner consensus because the line would not be located along field boundaries and MATL indicated a reluctance to pay easement compensation that was not based on the fair market value of land and therefore not consistent with compensation offered to other landowners with similar land. It does better avoid one house than Alternative 2.

The three Diamond Valley Local Routing Options all have equal likelihood of encountering cultural resource sites. These areas are considered moderate to low probability areas for cultural resources.

3.16.3.2 Teton River Crossing Area

The Teton River has a meandering channel near the river crossing, and a broad floodplain. The routing option (**Figure 2.6-3**) would allow one structure on the north side of the river to be on a slightly more elevated terrace that would avoid an area in the right-of-way for Alternatives 2 and 4 that is reported to have flooded in 1964. It would also locate structures at the edge of fields to reduce interference with farming.

The proximity to residences would be the same for this realignment as Alternative 2, with no occupied residences nearby. Depending on final design, some additional clearing of tall growing riparian vegetation would be required on the south bank of the Teton River. Because the Teton River Crossing realignment would require more angled structures and be about a quarter mile longer than Alternative 2, it would cost at least $28,845 more to construct.

3.16.3.3 Southeast of Conrad

The Southeast of Conrad routing option would result in lower estimated farming costs because more rangeland and a reclaimed gravel pit would be used (**Figure 2.6-4**). The Local Routing Option is about a tenth of a mile longer than the same segment of Alternative 2. The construction costs for the Southeast of Conrad realignment would be approximately $41,470 less than the costs for Alternative 2 because more H-frame structures would be used. The Southeast of Conrad realignment would have one residence between ¼ and ½ mile from the centerline whereas; Alternative 2 would have two residences between ¼ and ½ mile from the centerline. The number of residences within ¼ mile of the line, would be the same for the Southeast of Conrad realignment and the corresponding section of Alternative 2.

This routing option southeast of Conrad would cross more uncultivated, native range lands, compared to the Alternative 2 segment it would replace, and would have a greater chance of encountering cultural resource sites if this option was selected.

3.16.3.4 West of Conrad

The West of Conrad routing option would decrease potential mid-field interference with aerial crop dusting compared to the Alternative 2 alignment, but would cause more edge-of-field interferences along the southern east-west and west segments (**Figure 2.6-5**). The West of Conrad realignment would have two residences between ¼

and ½ mile from the centerline whereas; the corresponding section of Alternative 2 would have no residences between ¼ and ½ mile from the centerline. The Local Routing Option is approximately a half mile longer than the same segment of Alternative 2. This routing option would likely result in cost savings (reduced farming costs) to farmers due to structure locations along the edges of fields. Cost of construction for this realignment would be about $111,005 more than Alternative 2.

3.16.3.5 Northwest of Conrad

The Northwest of Conrad routing option (**Figure 2.6-6**) would decrease the amount of cultivated land crossed diagonally compared to Alternative 2, thereby decreasing estimated costs to farm around structures. The Local Routing Option is approximately a tenth of a mile longer than the same segment of Alternative 2 and would have an additional cost of $24,050. The approximate increased construction cost would not exceed the estimated cost savings to landowners. The Northwest of Conrad routing option realignment would have two residences between ¼ and ½ mile from the centerline whereas; Alternative 2 would have only residence between ¼ and ½ mile from the centerline. The number of residences within ¼ mile of the centerline would be the same for the Northeast of Conrad realignment and the corresponding section of Alternative 2.

This routing option may encounter several tepee rings, which can be spanned. It would cross more uncultivated, and native range lands, compared to the Alternative 2 segment it would replace, and would have a greater chance of encountering cultural resource sites.

3.16.3.6 Belgian Hill Road Area

The Belgian Hill route options are shown in **Figure 2.6-7**. The routing options could be used with Alternative 2 or the northern portion could be used with Alternative 4. Comments received on the March 2007 document and subsequent field review indicate that the old Belgian Hill reroute used with Alternative 2 would cross approximately ½ mile of cultivation on the diagonal and would also traverse a side-roll irrigated field. The revised Belgian Hill routing option would reduce estimated farming costs by slightly reducing the length of diagonal crossing of cultivated fields by about ¼ mile and would help avoid the crossing of the side-roll irrigated field. However, it would cross the same side roll irrigated field as Alternative 2 but at a location roughly 1,250 feet further west. The Local Routing Option is approximately a tenth of a mile longer than the same segment of Alternative 2 and would have an additional cost of $10,135. It is approximately 0.4 miles shorter than Alternative 4 and would have cost savings of $130,600 over Alternative 4. The Belgian Hill routing option would be located between ¼ and ½ mile of four residences. As with Alternative 2, this routing option would still cross a field with a side roll irrigation system.

The Belgian Hill Local Routing Option would reduce the potential for wind caused noise impacts to four residences close to Alternative 2 and be about 1,250 feet closer to two residences than Alternative 4.

The Belgian Hill Local Routing Option alignment would have two residences between ¼ and ½ mile from the centerline whereas, the corresponding section of Alternative 2 would have no residences between ¼ and ½ mile from the centerline. However, the number of residences within ¼ mile of the line would be two for the Belgian Hill realignment and four for the corresponding section of Alternative 2. The Alternative 4 alignment would be the farthest away from the residences.

3.16.3.7 Bullhead Coulee Area

Under Alternative 2, a landowner could lose the opportunity of receiving annual payments from having a wind turbine located on his land since the proposed line location would be within 500 feet of a planned turbine. The turbine is part of wind farm that has not signed agreements with MATL but plans to interconnect with another transmission line in the area. The Bullhead Coulee South routing option (**Figure 2.6-8**) would allow placement of a wind turbine south of the line. Expected annual revenue from the turbine over the life of the line is estimated to exceed the additional cost of line construction. The affected landowner who suggested the reroute recognizes that the line would cross some additional CRP land on his property. This reroute would entail additional angle structures and would involve routing the line off a high bench, through fields, and back up to the bench. The Local Routing Option is approximately a third of a mile longer than the same segment of Alternative 2 and would have an additional cost of $83,135. The potential for erosion would increase slightly, but proposed and required mitigating measures should adequately address such impacts. The proximity of residences to the Bullhead Coulee South realignment would not differ from Alternatives 2 or 4.

The Bullhead Coulee North routing option (**Figure 2.6-8**) could reduce farming costs by placing more structures on field edges. The Local Routing Option is approximately 0.1 mile longer than the same segment of Alternative 2 but would cost about $3,075 less than Alternative 2 because more H-frame structures would be used. This Local Routing Option visual and noise impacts would be the same as Alternative 2.

3.16.3.8 South of Cut Bank

This segment was designated as part of the tentative preferred alternative in the March 2007 document and has general local acceptance. This approximately 2.4-mile-long realignment would be approximately 0.1 mile longer than the same segment of Alternative 2 and be located ¼ mile west of the Alternative 2 alignment. This realignment would better follow property boundaries and section lines. It avoids a

midfield location in a CRP field reducing potential for interference with farming. This Local Routing Option visual and noise impacts would be the same as Alternative 2. The South of Cut Bank realignment would have a slightly higher cost to construct.

3.17 Electrical Transmission System Operation and Reliability

This section describes the affected transmission system as it is currently configured and managed, and how reliability could be affected by the Project. This analysis was based, in part, on the results of a system feasibility study (ABB Consulting 2005) and the NorthWestern Corporation MATL System Impact Study (**Appendix I** to the MATL application). Additional data and information for this section were compiled and refined from several sources including the MATL application for certification (MATL 2006b) and information contributed by DEQ's economist (Blend 2007).

Prior to issuing a Presidential permit, DOE would prepare a separate reliability determination. At the time this document is published, information on which to base the DOE decision is preliminary.

3.17.1 Existing Transmission System

The North American transmission grid moves electricity from power-generating facilities to customers using a transmission system coordinated by the North American Electric Reliability Council (NERC) (**Figure 1.1-2**). NERC's mission is to ensure that the bulk electric system in North America is reliable, adequate, and secure. NERC's primary role is to set standards for the reliable operation of the bulk electric system and monitor and enforce compliance with reliability standards (NERC 2007). NERC is composed of eight regional reliability councils formed in response to national concern regarding the reliability of the interconnected bulk power systems, the ability to operate these systems without widespread failures in electric service, and the need to foster the preservation of reliability through a formal organization (NERC 2007).

Montana is located primarily within the western grid under the authority of the Western Electricity Coordinating Council (WECC). The WECC region is the largest and most diverse of the regional councils. WECC's service territory extends from Canada to Mexico and includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 western states in between (**Figure 1.1-2**). The WECC mission is to support efficient competitive power markets, assure open and non-discriminatory transmission access among members, and provide a forum for resolving transmission access disputes (WECC 2007). There is currently no direct power transmission connection between Alberta and Montana (**Figure 1.1-2**).

Transmission Capacity

Owners of transmission lines sell rights to use lines on a long-term firm basis, a long-term non-firm basis, or a short-term basis. "Firm" transmission service is a contractually established priority right to transmit a given amount of energy for a given period of time. "Non-firm" service is typically reserved and scheduled on an as-available basis and is subject to curtailment or interruption. An agreement must be in place between a shipper and an owner of a line before any power can be transmitted over the western grid. Under WECC requirements, the owner of a line must determine whether the line has available capacity before an agreement can be entered into. The available transmission capacity is calculated by subtracting contracted uses from the total rated line flow capacity. The transmission path can be described as congested if (1) no rights to use it are for sale, (2) it is fully scheduled and no firm space is available, or (3) the path is fully loaded to its flow capacity (DEQ 2004).

Electricity moving across the western grid does not necessarily follow contracted paths. Rather it flows along the paths of least resistance. Therefore, before a new transmission line is added to a grid, operators of the grid conduct studies to ensure that new power does not overload other lines and substations on the grid. In the case of the proposed MATL line, these studies are overseen by WECC. In August 2007, WECC released the results of its study and granted the MATL line an accepted rating of +/- 300 MW (**Appendix M** - Letter from WECC/BPA, Brian Silverstein, about MATL Phase III Status, dated August 28, 2007). Negotiations between MATL and NorthWestern Corporation for MATL to connect to NorthWestern Energy's line are completed and the signature pages from the executed agreement are included in Appendix M.

Montana's Electricity Generation and Transmission System

Except for several rural electric cooperatives and Montana Dakota Utilities customers, Montana's residential and commercial customers receive most of their contracted electricity from generation facilities located in Montana (DEQ 2004).

Most of Montana's electric generation is owned by private utilities or by the Federal government through the U.S. Army Corps of Engineers or the Bureau of Reclamation. The Bonneville Power Administration (BPA) and Western Area Power Administration (WAPA) market hydropower from Federal dams in Montana. PPL Montana is the largest supplier of Montana-consumed energy, owning both hydroelectric and coal-fired generation. PPL Montana's hydroelectric generation facilities are regulated by the Federal Energy Regulatory Commission (FERC).

Montana has just over 5,000 MW of electrical generation capacity within its borders, most of it coal-fired and hydroelectric power. From 1999 to 2003, Montana's electric generating plants produced an average output of about 3,000 average megawatts (aMW) (DEQ 2004). During that same time period, just over half of Montana generation

was consumed in-state, while approximately 1,400 aMW were delivered out of the state (DEQ 2004).

Wholesale prices of electricity are set by contract negotiations between transmission suppliers and electricity suppliers. Wholesale prices in Montana are usually bounded by prices at the Mid-Columbia hub located near the Columbia River in Washington State. Usually, the wholesale price for electricity goes no higher than the Mid-Columbia price minus transmission costs into Montana (Blend 2007). NorthWestern Energy (NWE), Montana's largest private transmission and distribution utility, is the only major Montana transmission utility in-state on the Western Grid and is responsible for determining the default power supply for a majority of consumers in Montana. The default source will be approved by the Public Service Commission (Blend 2007).

NWE uses around 600 to 650 aMW of electricity to serve its customers, with a peak usage of over 1,000 MW. BPA and WAPA provide transmission service to electric cooperatives that deliver electricity to many of the smaller Montana customers on the western grid not served by NWE. Other wholesale suppliers provide electricity over transmission lines owned by NWE to a number of large commercial and industrial customers. NWE is regulated by the Montana Public Service Commission, FERC, and WECC rules, while BPA and WAPA and electric cooperatives will meet Federal regulatory and WECC requirements.

Alberta's Electricity Generation and Transmission System

Alberta has experienced the fastest growing electricity demand in Canada over the past 5 years (Independent Power Producers Society of Alberta 2006). Since 1999, the demand for power in Alberta has grown by 21 percent, which compares to the average growth of demand in North America of 12 percent over the same time period (Independent Power Producers Society of Alberta 2006). To meet this demand, approximately 3,800 MW of new generation have been added to Alberta's grid in the past 7 years (Independent Power Producers Society of Alberta 2006). This includes new coal units (450 MW), new wind and alternative fuel projects (300 MW), and 3,000 MW of new gas-fired generation. As of late 2006, Alberta had 11,557 MW of supply capacity, compared with almost 9,600 MW of peak demand (Alberta Department of Energy 2006). An additional 4,800 MW of power generation has been announced by industry for future development in Alberta (Alberta Department of Energy 2006).

Coal-fired generation makes up just over 50 percent of Alberta's generating capacity and gas almost 40 percent, with hydro, wind, and alternative fuel making up the remaining 10 percent (Alberta Department of Energy 2006).

The electric transmission system in Alberta is owned, built, and maintained by private investors (Alberta Department of Energy 2006), except for some municipally owned utilities. Alberta has nearly 30 suppliers offering new electricity products and services

to Alberta's wholesale, commercial, and residential customers. Alberta also has electric cooperatives. Wholesale prices are set by the laws of supply and demand in Alberta and fluctuate daily in response to consumer demand (Alberta Government Services 2006). Alberta's hourly wholesale electricity market is managed by the Alberta Electric System Operator (AESO), an independent system operator that facilitates Alberta's competitive wholesale electricity market and is accountable for the administration and regulation of load settlement function (AESO 2007). Consumers may choose their own electricity supplier or remain under default supply arrangements determined by AESO, which are periodically adjusted to reflect actual wholesale power costs (Alberta Government Services 2006). The costs and expansion plans of Alberta's transmission and distribution lines are regulated by the Alberta Energy and Utilities Board.

Alberta has been a net importer of electricity 5 out of the last 6 years, but electricity regularly flows in and out of the province (Alberta Department of Energy 2006). Alberta is not currently directly connected to Montana but has 800 MW of transmission connections with British Columbia and 150 MW with Saskatchewan (**Figure 1.1-2**).

3.17.2 System Reliability Constraints and Influences

Power transmission systems must include many sources of generation and pathways to be reliable sources of electricity. The MATL transmission line may improve reliability on Montana's transmission system due to (1) better generation resource sharing and (2) different electric routing options. Different transmission system operators (jurisdictions) have different load factors and different mixes of generation. One example of this is peak loads occurring at different times of the day or seasons of the year for different jurisdictions. The fact that every jurisdiction does not experience peak demand and supply at exactly the same time of day/month allows the potential sharing of resources, which could lead to improved reliability (Williams 2006). Tie lines such as MATL can respond to these different load and generation characteristics.

A stand alone jurisdiction would need more generators standing by on an as-needed basis to cover planned and unplanned outages of generating units, than would be required for the same level of reliability if that jurisdiction was interconnected to other jurisdictions. The probability that multiple adjacent jurisdictions would experience a large loss of generation at the same time is very low, so adjacent jurisdictions can get the benefits of higher generation reliability by sharing generation resources. Sharing these resources costs each jurisdiction less than what it would cost to own the resource entirely and not share (Williams 2006).

MATL might also allow more alternative options for power routing within Montana. If a particular line was removed from service due to either an unexpected event or scheduled maintenance, the MATL tie line could be used to supply power from the north giving transmission operators in Montana one more option to use in case of a removed line. This routing would depend upon loading on the line. Alberta's independent system operators might be able to use MATL in a similar fashion for their service area.

Potential Impacts to System Reliability

Potential impacts to system reliability from the Project have been evaluated by NorthWestern Energy in its System Impact Study (NWE 2006) and by the potentially affected transmission system owners and agencies via the WECC Path Rating Process (WECC 2007). Summaries of these studies are provided in Appendix M. MATL has committed to mitigate the reliability impacts identified in NorthWestern's system impact study and has committed to a process for mitigating the impacts identified in the WECC Path Rating process (Williams 2007e).

Potential Impacts to Reliability Based on Information Provided by NWE and MATL's Plan to Mitigate those Impacts

Negotiations between MATL and NorthWestern Corporation to interconnect the MATL line to the Great Falls 230 –kV Switchyard are completed (Appendix M)

Potential Impacts to System Reliability Based on WECC Path Rating Study

The WECC organization granted Phase III status for the MATL project with an Accepted Rating of +/- 300 MW on August 28, 2007. This Phase III status requires that MATL work with impacted transmission owners and agencies to develop remedial action schemes (RAS) and other forms of operational mitigation to address potential impacts on system reliability. The completion of this work by MATL resulted in an interconnection agreement that became effective on January 31, 2008.

3.18 Information Regarding Findings for MFSA Certification

DEQ would approve a transmission line facility as proposed or as modified or an alternative to the proposed facility if it finds and determines:

- the need for the facility;
- the nature of probable environmental impacts;
- that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives;
- what part, if any, would be located underground;
- the facility is consistent with regional plans for expansion of the appropriate grid of the utility systems serving the state and interconnected utility systems;
- the facility would serve the interests of utility system economy and reliability;
- that the location of the proposed facility conforms to applicable state and local laws;
- that the facility would serve the public interest, convenience, and necessity;
- that DEQ has issued all necessary decisions, opinions, orders, certifications, and permits; and
- that the use of public lands for location of the facility was evaluated, and public lands were selected whenever their use is as economically practicable as the use of private lands (75-20-301[1], MCA).

Information pertaining to these determinations is summarized in this section.

3.18.1 Need

In order to determine that there is a need for the proposed electric transmission line, the Department must make one of the findings enumerated in ARM 17.20.1606. Pursuant to subsection (1)(a) of that administrative rule, insufficient power transfer capacity at adequate voltage levels under normal operating conditions may form a basis of need if the department finds that the transfer capacity of the proposed facility will be required within two years of the date the proposed facility is to be placed in service.

MATL held an Open Season between February 3 and April 15, 2005, during which companies could submit bids for transmission rights on the proposed 600 MW transmission line. MATL received 13 bids from four different companies, accepting bids totaling 420 MWs. The U.S. Federal Energy Regulatory Commission has determined that the bidding process used by MATL was nondiscriminatory, fair and transparent. MATL held an additional Open Season between June 9 and 30, 2006. MATL received 37 bids from four different companies for a capacity totaling more than 2000 MWs. MATL accepted bids from four companies totaling 300 MWs in each direction (**Table 4.1-2**).

3.18.2 Nature of Probable Environmental Impacts

Probable impacts to land use, geology, soils, safety, hazardous material management, electric and magnetic fields, water, wetlands, vegetation, wildlife, fish, special status species, air quality, noise, socioeconomics, paleontological resources, cultural resources, transportation, utilities, visual resources, and the existing transmission system from the proposed Project and alternatives are described in Sections 3.1 through 3.17 and summarized in **Table 3.18-1**. This table summarizes impacts from Alternative 2 as proposed by the applicant along with Alternatives 3 and 4. It does not include mitigation measures; such as potential alignment changes described for land use and visuals. Applicant proposed measures to reduce impacts discussed in Chapter 3 would be applied to Alternative 2 if selected as the preferred alternative. Cumulative impacts are described in Chapter 4.

3.18.3 Facility Minimizes Adverse Environmental Impact

Section 75-20-301 (1)(c), MCA requires a finding that the facility as proposed or modified or an alternative to the facility must minimize adverse environmental impact considering the state of available technology and the nature and economics of the various alternatives. ARM 17.20.1607 outlines additional requirements before this finding can be made.

Project costs and costs of mitigation are presented in **Table 4.20-1**. The estimated annual net effect from the project on farmers is indicated in **Table 3.13-15** along with the net effect over 50 years.

Table 3.18-1 summarizes probable impacts for each alternative. Resource specific impacts are described in Chapter 3. Cumulative impacts are described in Chapter 4. Monetary values of these impacts, except for estimated costs to farmers, cannot reasonably be quantified. Many potential adverse environmental impacts are minimized through measures proposed by the applicant and the application of environmental specifications (**Appendix F**). A plan for monitoring the facility is described in environmental specifications for the project in **Appendix F** and further detailed in ARM 17.20.1901.

The proposed line and alternatives would not cross any of the following areas: wilderness areas, national primitive areas, national wildlife refuges, state wildlife management areas and wildlife habitat protection areas, national parks and monuments, state parks, national recreation areas, corridors of rivers in the national wild and scenic rivers system and rivers eligible for inclusion in the system, roadless areas greater than 5,000 acres in size managed by Federal or state agencies to retain their roadless character, and specially managed buffer areas surrounding national wilderness areas and national primitive areas. The line would cross isolated areas with

rugged topography on slopes greater than 30 percent. Vegetation may be destroyed during the construction process and soil exposed to erosion on these steep slopes. MATL has proposed a plan to control erosion during project construction and would be required to implement a storm water pollution prevention plan under Montana water quality statutes. DEQ would require a bond to ensure that areas disturbed during construction are reclaimed and revegetated.

If approved, DEQ would require that the project meet standards for noise and electric field strength in residential and subdivided areas unless affected landowners waive these requirements. The project would be required to meet minimum standards set forth in the National Electrical Safety Code and Federal Aviation Administration requirements for marking the line.

Reasonable alternative locations for the project have been considered throughout the review process and will be considered in the final decision making process.

3.18.4 Locating Transmission Lines Underground

No part of the transmission line would be built underground. Underground 230-kV lines would cost between 2 and 15 times the amount required to build an overhead line (Georgia Transmission Corporation 2006; Verbund 2006). Thus, the cost to build underground may be slightly more than $1 million per mile (Energy Central News 2007), compared with MATL's estimate of about $293,500 per mile using H-frame structures. This would be cost prohibitive and would stop the project.

Digging trenches to bury the lines would result in greater construction disturbance to the land and would require greater time to install. Above ground access vaults would need to be constructed as well as above ground structures at line termination points. Buildings on the alignment would be restricted. Vegetation would likely have to be restricted to avoid reducing soil moisture that is needed to cool the transmission line. Problems with underground systems would also be more difficult to locate and repair.

3.18.5 Facility is Consistent with Regional Plans for Expansion of the Appropriate Grid of the Utility Systems Serving the State and Interconnected Utility Systems

The transmission line would allow new generators to connect to regional grids and provide a direct connection between Alberta and Montana grid systems. There is no single formal published plan for expansion of the regional grid. WECC oversees the Regional Planning Process. A Regional Planning Review Group was formed and on January 23, 2007 the WECC Planning Coordination Committee notified MATL that the Regional Planning Project Review had been completed. Based on that review, WECC granted the MATL project Phase III status on August 28, 2007. The Phase III status established that MATL could transfer up to 300 MW in each direction under normal operating conditions without violating established reliability criteria.

An interconnection agreement between MATL and NWE became effective on January 31, 2008. The interconnection agreement commits MATL to fund all electric system modifications and enhancements necessary for the MATL line to be operated at that Phase III level. Taken together, the WECC rating and interconnection agreement establish that the facility is consistent with regional plans for expansion of the appropriate grid of the utility systems serving the state and interconnected utility systems.

3.18.6 Facility Would Serve the Interests of Utility System Economy and Reliability

As indicated above, WECC has approved a path rating of +/- 300 MW and an interconnection agreement between MATL and NWE became effective on January 31, 2008 (**Appendix M**). Thus, the facility will serve the interest of utility system economy and reliability.

3.18.7 Location of the Proposed Facility Conforms to Applicable State and Local Laws

The location of the facility would conform to applicable state and local laws and regulations either as a permitting or license condition, or in compliance with project-specific environmental specifications (**Appendix F**).

3.18.8 Facility Would Serve the Public Interest, Convenience, and Necessity

The proposed transmission line would be built to meet the need for additional transfer capacity and transmission access for new wind power generators. Benefits to the applicant would be the monetary profit from operating the transmission line. Benefits to the state, and to the public include local tax revenues to counties in which the line is

located, state tax revenues from the line, a short-term boost to local economies from construction, future electricity generation, and potentially easier access to new spot electricity market within which Montana utilities could buy and sell electricity. The grid may also operate more efficiently.

Economic impacts due to the proposed transmission line would be minimal at a state level. Construction benefits would be short term. Line maintenance employment benefits and tax benefits would be long term but likely small at both a county and state level except for Pondera County which could earn up to $240,000 per year in tax revenue. Farmers would experience greater costs from loss of farming acreage and difficulty farming due to the poles. Some of these costs would be mitigated by payments from MATL. Other environmental impacts (costs) are summarized in **Table 3.18-1**.

Benefits to the state of potential wind farms would include jobs, state taxes and county taxes. Costs would include environmental impacts associated with wind farm development and operation. Benefits and impacts of wind farm development are described in Chapter 4.

The proposed facility is unlikely to have adverse affects on public health, welfare and safety because the line would conform to the requirements of the National Electrical Safety Code and DEQ standards for electric field strength in residential or subdivided areas and at road crossings. Sensitive receptors such as residences, schools, and hospitals would be located at distances sufficient that even the most restrictive suggested standards for magnetic fields would be met under normal operating conditions. Structure designs would be used that discourage pole climbing by members of the public. Lastly, the project would be constructed in a manner that minimizes adverse impacts to soil, water, and aquatic resources.

3.18.9 Public and Private Lands

The use of public lands for location of the facility was evaluated, and public lands were incorporated into alternatives whenever their use was as economically practicable as the use of private lands (75-20-301(1)(h), MCA). Table 3.1-5 lists the public land crossed by each alternative.

3.18.10 DEQ Issuance of Necessary Decisions, Opinions, Orders, Certifications, and Permits

As appropriate, the department would issue all necessary environmental permits at the time the decision is made on whether or not to grant a certificate for the facility. MATL has not applied for air or water quality permits.

TABLE 3.18-1
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS AND COSTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Land Use – General Impacts	Potential impacts compared to other alternatives depend on length of alignment in general, and length on cropland.	Potential impacts compared to other alternatives depend on length of alignment in general, and length on cropland.	Potential impact compared to other alternatives depend on length of alignment in general, and length on cropland.	Loss of production due to structures & roads, increased risk of weed introduction and spread, risk of equipment damage from hitting a structure, increased time to farm around poles, and some GPS-guided equipment may be affected. Cropland crossings also increase the risk of crop duster accidents.
Land Use – General Impacts	Similar for all alternatives	Similar for all alternatives	Similar for all alternatives	During construction, facility construction traffic may conflict with movement of farm equipment on roads.
Land Use- Total Amount of Land Crossed	129.9 miles	121.6 miles	139.6 miles	Alt 3 would disturb the least amount of land. Alt 4 would disturb the most.
Land Use – Total Cropland crossed	93.3 miles	97.7 miles	87.9 miles	Alt 4 crosses the least cropland. Alt 3 crosses the most cropland.
Land Use – Total Cropland Crossed Diagonally	52.9 miles	70.4 miles	27.1 miles	Alt 4 crosses the least cropland diagonally / Alt 3 crosses the most diagonally.
Land Use – Total Ground Disturbance during Construction	330 acres	315 acres	348 acres	Alt 3 disturbs the least and Alt 4 disturbs the most ground.
Land Use – Guaranteed Use of Monopoles On Cropland	Yes, for 56 miles	No	Yes	Alt 4 requires the use of monopoles for crossing all cropland, Alt 2 would use monopoles for 56 miles of cropland and CRP land crossed diagonally. Alt 3 would not use monopoles unless at the discretion of MATL.
Land Use –Special Management Areas Crossed	11.2 miles	6.4 miles	11.2 miles	Alt 3 would cross the least amount of special management areas. Alt 4 would avoid the Great Falls Shooting Sports Complex
Land Use – Conservation Easements Crossed	23.6 miles	18.1 miles	32.5 miles	Alt 3 would cross the least amount of conservation easements. Alt 4 would cross the most.

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Land Use – Proximity to Residences	1 residence within about 270 feet of the centerline. 20 residences less than ¼ mile from the centerline.	25 residences less than ¼ mile from the centerline.	20 residences less than ¼ mile from the centerline.	Alts 2 and 4 have the fewest residences less than ¼ mile from the centerline. Alt 2 has the closest residence to the centerline.
Land Use – Length of 500-foot-wide Alignment Buffer Zone Within 100 feet of a Pipeline.	7.0 miles	23.7 miles	5.7 miles	Alt 4 has the least amount of the 500-foot alignment buffer zone near pipelines. Alt 3 contains the greatest length of alignment near pipelines.
Land Use – Impacts to Roads and Road Use	Increased traffic on roads during construction resulting in occasional conflicts with farm machinery.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Geology – Miles on Soil and Geologic Resources Prone to Mass Movement	5 miles	3 miles	20 miles	Alt 3 would have the least risk of causing mass movement that could result in pole instability. Alt 4 presents the greatest risk.
Soils – Miles on Unstable Soils	16 miles	12 miles	24 miles	Alt 2 would have the least risk of soil erosion. Alt 4 presents the greatest risk. Soil erosion impacts can be mitigated under all alternatives.
Engineering	No adverse impact to structural reliability is anticipated.	Same as Alt 2	Same as Alt 2	All facilities are proposed to be constructed in compliance with accepted engineering standards.
Hazardous Materials	No impact to resources from hazardous materials is anticipated.	Same as Alt 2	Same as Alt 2	MATL proposes to manage and transport hazardous materials and wastes in accordance with State and Federal requirements.
EMF – Exposure Levels	Low impact	Same as Alt 2	Same as Alt 2	Exposure levels would not exceed state standards for electric fields.

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
EMF – Radio or TV Interference	Low impact	Same as Alt 2	Same as Alt 2	No alternative is expected to interfere with stationary radio or TV reception. Potential interference with mobile AM reception of weak signals.
EMF – DGPS Interference	Potential for interference with radio-based differential connection signal from corona, gap discharges, scintillation, and to a lesser degree, limited shielding of GPS satellite signal.	Same as Alt 2	Same as Alt 2	Agencies would require mitigation for interference with GPs signals.
Water – General Impacts	Potential impact compared to other alternatives depends on number of river and lake crossings	Potential impact compared to other alternatives depends on number of river crossings	Potential impact compared to other alternatives depends on number of river crossings	Minor short-term adverse impacts to surface water quality could occur by temporarily increasing sources of sediment from the time of construction to reclamation completion. This impact would be mitigated if water and riparian areas are undisturbed or measures to reduce sediment transport are installed.
Water – Potential Number of Perennial Stream or River Crossings	10	6	17	Alt 3 poses the lowest risk and Alt 4 poses the highest risk of contributing sediment to streams and lakes based on number of stream crossings. Multiple crossings would be addressed during on-site inspections.
Water – Potential Number of Lake Crossings	4	6	2	

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Wetlands - General	Potential impact compared to other alternatives depends on acres of wetlands not spanned. One structure would be placed in Black Horse Lake.	Potential impact compared to other alternatives depends on acres of wetlands not spanned. One structure would be placed in Black Horse Lake.	Potential impact compared to other alternatives depends on acres of wetlands not spanned.	Spanning of most wetlands is expected. Construction disturbance could result in a change in wetland plant community if wetland hydrology is altered. This impact would not occur if wetlands were undisturbed during construction and maintenance.
Wetlands – Total Wetlands and Potential Wetlands Crossed	71.9 acres	78.1 acres	77.4 acres	Spanning of most wetlands is expected. Alt 2 crosses the least amount of ground that contains wetlands and potential wetlands. Alt 3 crosses the greatest amount of wetlands and potential wetlands.
Vegetation - General	Potential impact compared to other alternatives is dependent on acres of disturbed native vegetation	Potential impact compared to other alternatives is dependent on acres of disturbed native vegetation	Potential impact compared to other alternatives is dependent on acres of disturbed native vegetation	Temporary loss of vegetation and increased risk of weed emergence and dispersion in disturbed areas until reclaimed.
Vegetation – Potential loss during construction	38 acres	41 acres	48 acres	Alt 2 would disturb the least amount of native vegetation; Alt 4 would disturb the largest acreage.
Wildlife - General	Impacts greatest for birds and animals with low mobility.	Same as Alt 2	Same as Alt 2	Short-term impacts include loss of individuals during construction or direct disturbance of species during critical periods in their life-cycles. Long-term impacts include habitat alterations and collisions. Impacts would be similar for all alternatives.
Wildlife- Crosses Mule Deer Winter Range	19 miles	20 miles	28 miles	Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Wildlife – Birds	Collisions with transmission line could result in bird loss. Portion of the line located near wetland and the Benton Lake National Wildlife Refuge would experience potential bird collisions.	Because the line length and location are similar to the existing 115-kV line (within 1% difference) and both pass near wetlands and the Benton Lake National Wildlife Refuge, impacts to wildlife would be similar to Alt 2.	Close proximity to Benton Lake National Wildlife Refuge is avoided. Collision risk exists in other areas.	Bird collision potential is similar for all alternatives. Marking of line would reduce but not eliminate collisions.
Fish – Expected Impacts to Water Quality	10 perennial river crossings	6 perennial river crossings	17 perennial river crossings	Low impact is expected but Alt 3 poses the lowest risk of affecting fish habitat by contributing sediment to streams based on the number of stream crossings.
Special Status Species - Vegetation	All known occurrences are located outside the study area	Same as Alt 2	Same as Alt 2	Low impact is expected. Risk to vegetation special status species is based on risk to its habitat (wetlands). Alt 2 has the least likelihood of affecting vegetation species of concern because the alignment crosses the least riparian habitat, Alt. 4 crosses the most.
Special Status Species – Wildlife Habitat Crossed	19.9 miles	11.3 miles	11.7 miles	Alts 3 and 4 would cross the least amount of habitat type used by special status species wildlife.
Air Quality – General	Some localized short-term emissions of particulate matter would occur during construction.	Same as Alt 2	Same as Alt 2	All alternatives have similar low impact

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Audible Noise - General	Short-term, localized construction noise. Noise from rain or wind on the transmission line would be below BPA and HUD guidelines.	Same as Alt 2	Short-term, localized construction noise. Noise from rain or wind on the transmission line would be below BPA and HUD guidelines, but may exceed the DEQ standard in one subdivided area (0.16 mile).	All alternatives have similar low impact
Social Resources	Increased short-term construction and long-term maintenance employment opportunities	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics – Short Term	Short-term construction-related employment would be available.	Same as Alt 2.	Same as Alt 2. MATL has stated it would take longer to build.	All alternatives have similar impact
Economics – Counties	Long-term operation and maintenance employment would be available. County and State tax revenues would increase. Farmers would bear additional costs from having to farm around transmission structures	Same as Alt 2. (Except that farmers would have higher additional costs from having transmission structures on their land.)	Same as Alt 2. (Except that costs to farmers from having transmission structures on their land would be less.)	All alternatives have similar impact

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Economics – State	Opportunities to export electric power would increase. Increased competition may reduce electricity cost to ratepayers. Creation of opportunities to start up wind generation facilities. Additional tax revenues.	Same as Alt 2.	Same as Alt 2. MATL has stated it would take longer to build.	All alternatives have similar impact
Paleontological Resources – Miles of Geologic Units Crossed With a High Probability of Containing Fossils.	51.6 miles	44.3 miles	44.6 miles	Alt 3 would cross the fewest miles having a surface expression of the Two Medicine Formation which has a high probability of containing fossils. Alternative 2 would cross the most miles over the Two Medicine Formation.
Cultural Resources- Number of Cultural Resources in the 500-foot wide analysis area	Crosses 8 sites eligible for the NRHP and 33 sites of undetermined eligibility.	Crosses 7 sites eligible for the NRHP and 9 sites of undetermined eligibility.	Crosses 4 sites eligible for the NRHP and 19 sites of undetermined eligibility.	Alt 4 would pose a risk to the lowest number of cultural resource sites eligible for the NRHP. Alt 2 would pose a risk to the greatest number of such sites.
Visuals – General	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast.	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Decline in aesthetic quality of a view shed, visual contrast or landscape change due to contrast with natural landscape.
Visuals – Residences within ¼ mile	20 residences	25 residences	20 residences	Alt 2 and 4 would be visible from the fewest residences within ¼ mile.

TABLE 3.18-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Visuals – Number of Residences ¼ - ½ Mile	51 residences	65 residences	45 residences	Alt 4 would be visible from the fewest residences within ¼ to ½ mile. Alt 3 would be visible to the most residences.
Visuals – Within ½ mile from a Travel Corridor	6.1 miles	7.6 miles	5.0 miles	Alt 4 would be visible from the shortest length of a travel corridor within ½ mile. Alt 3 would have the longest visibility.

Notes:

Alt	Alternative	BPA	Bonneville Power Administration		
EMF	Electric and Magnetic Field	EPA	U.S. Environmental Protection Agency		
Est	estimated	GPS	Global Positioning System	NRHP	National Register of Historic Places
HUD	U.S. Housing and Urban Development	L & C	Lewis and Clark County	TV	Television

4.0 Cumulative Impacts and Other NEPA and MEPA Considerations

This chapter presents information and analysis necessary to comply with several provisions of NEPA and MEPA. To support the subsequent analyses, the chapter begins with a preface about what a merchant transmission line is and the potential uses of the proposed MATL line. The remaining sections in Chapter 4 discuss:

- Cumulative impacts of the proposed Project and alternatives when combined with past, present, and reasonably foreseeable future actions, including the interconnection of the proposed MATL line and potential wind farms that may use the line (Sections 4.1 through 4.16);
- Unavoidable adverse impacts (Section 4.17);
- Irreversible or irretrievable commitments of resources (Section 4.18);
- Short-term use versus long-term productivity (Section 4.19);
- Regulatory impacts on the applicant's private property rights (Section 4.20); and
- Intentional destructive acts (Section 4.21).

Description of a Merchant Transmission Line

A transmission line is normally built for one of three different situations. The most typical situation is a transmission line constructed by an electric utility to help serve customers' demand for electricity within its service area. A second situation is the construction of a transmission line by various parties (private and utility) interested in connecting a specific power-generating source to the regional electrical system. A third situation is a "merchant line," a line constructed and owned by a private party with no electric service area who owns no other electrical facilities (generating units, distribution lines, or substations). A merchant line is generally intended to serve a need or market for electricity. MATL's proposed 230-kV transmission line project would be a merchant line project.

The merchant transmission line development company finances its project through private sources and recovers its investment in the project by selling rights to use "capacity," or space, on the line. Anyone may purchase capacity on a merchant line, including conventional electric generating sources or renewable sources. The FERC has an "open season" process by which merchant transmission developers offer the capacity for sale through a FERC-approved auction. FERC regulations require an open and fair offering of the capacity to shippers.

The entities that acquire transmission capacity through the open season auction have a guaranteed right to the purchased capacity for the specified period and, in return, have a firm obligation to pay the merchant transmission developer for these rights regardless

of whether or not they use them. Generally, this guaranteed payment from the purchasers of the transmission capacity facilitates the financing of merchant transmission projects.

Wind Power and the MATL Transmission Line

As of this writing, various developers of proposed wind farms have purchased all the shipping capacity (**Table 4.1-1)**. However, because the capacity rights are a commodity that may be resold or traded, the original purchasers may not be the power suppliers that use the line. MATL has indicated that capacity rights contracts do not require the use of any particular form of power generation.

TABLE 4.1-1
BIDS ACCEPTED BY MATL

Company Name	Total Awarded MW	Direction of Power Flow	Start Date/Contract Term (years)	Project Name/Location
NaturEner USA	120	South to North, Cut Bank to Alberta	Unknown/15	Glacier Wind Project/Glacier and Toole counties
NaturEner Canada	180	South to North	2008/24	Rim Rock Wind Farm/Toole County
Wind Hunter LLC	120	North to South	2007/25	Unnamed/unknown
Invenergy Wind Montana	180	North to South	Unknown/25	Unnamed/unknown

Notes:

MW = megawatt

In light of the foregoing, DOE believes that MATL's proposed Project is separate from and has an existence and utility independent from the wind farms. While the wind farms could be the first users of the line, it is reasonably foreseeable that other shippers would use the MATL line. As a result, DOE does not view the wind farms as "connected actions" as defined in 40 CFR 1508.25(a) (1). Therefore, in this EIS the impacts from potential wind farms are evaluated as cumulative impacts, consistent with 40 CFR 1508.7, and not connected actions.

4.1 Cumulative Impacts

The CEQ regulations implementing the procedural provisions of NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). The regulations further explain that "cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

MEPA defines cumulative impacts as "the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type" (75-1-220(3), MCA). "Related future actions may only be considered when these actions are under concurrent consideration by any agency through pre-impact statement studies, separate impact statement evaluations, or permit processing procedures" (75-1-208(11), MCA). Pursuant to ARM 17.4.627, whenever a state agency prepares a joint environmental impact statement that will comply with NEPA and MEPA, the joint document will be prepared in compliance with both statutes. The State agency may accede to and follow more stringent Federal requirements, such as additional content. NEPA requires reasonably foreseeable future actions to be included in the cumulative impacts analysis, not just those undergoing concurrent review. In order to comply with the more stringent Federal requirement, the cumulative impacts analysis in this document includes consideration of reasonably foreseeable future actions that do not meet the definition of related future actions, including potential wind farms.

DEQ considers cumulative impacts when making the findings under MFSA (ARM 17.20.1604 (1)(b) and 1607(1)(a)(vii)). Analysis of cumulative environmental impacts of a proposed Project and other actions helps to ensure that agency decisions consider the full range of consequences of the agencies' actions to the extent information is available.

Because the proposed Project would have no direct or indirect effects in the area of Engineering, there is nothing to add to the past, present, and reasonably foreseeable future actions. Therefore, there are no cumulative effects from the proposed action on that topic. However, some reasonably foreseeable future actions might result in changes in the local electrical system with a resulting cumulative impact on electric system reliability.

4.1.1 Region of Influence for Cumulative Impacts

Cumulative impacts are identified only where there is a reasonable likelihood that the proposed Project would have a cumulative or incremental effect with other past, present, and reasonably foreseeable future actions.

Depending on which resource is being evaluated, impacts may be: (1) confined to a specific long-term footprint of development; (2) limited to the entire Project study[7] area; or (3) extended over a much larger area beyond the resource analysis area.

4.1.2 Past and Present Actions Potentially Contributing to Cumulative Impacts

At least 17 pipelines and 8 transmission lines transect the Project study area and vicinity. Sources used to locate linear facilities that transect the study area are: 2005 aerial photos, field observations, and U.S. Geological Survey topographic maps at a scale of 1:24,000. Pipelines in the study area are described in Section 3.3.2. Transmission lines that start at either the Great Falls 230-kV Switchyard or the Rainbow Substation and transect the study area are:

1. NWE 100-kV transmission line that runs southwest from Great Falls,
2. NWE 100-kV transmission line that runs south from Great Falls,
3. NWE 115-kV transmission line that roughly parallels the alignment proposed under Alternative 3,
4. NWE 161-kV transmission line that runs northeast from Great Falls,
5. WAPA 115-kV transmission line that runs east-west through Shelby and Cut Bank,
6. WAPA 161-kV transmission line that runs from Great Falls to Havre,
7. WAPA 230-kV transmission line that runs between substations located near Shelby, Conrad, and the Great Falls 230-kV Switchyard, and
8. PPL Montana 100-kV transmission lines that connect hydroelectric developments to the Great Falls 230-kV Switchyard.

Other present and past activities in the vicinity of the proposed Project include farming (irrigated and non-irrigated), grazing, weed management, hunting, and general recreation; growth of cities and towns, residential areas, and industrial and commercial areas; and Federal and state highways and county roads, railroads and railroad rights–

[7] *The Project **study area** is the area that includes the proposed an alternative alignments and areas where roads may be built or improved. The study area was defined by MATL in its MFSA application to DEQ. The **analysis area** is the area evaluated for each resource. Different resources have different analysis areas. For some resources, the analysis area is the entire study area. For other resources, it may be a smaller area defined by the potential extent of impacts or a larger region defined by the units (for example, counties) for which relevant data are available.*

of-way, communication facilities, military installations, conservation easements, airports, and national trails.

4.1.3 Reasonably Foreseeable Future Actions Potentially Contributing to Cumulative Impacts

Reasonably foreseeable future actions that could occur in the Project study area include the development of wind farms, the new Southern Montana Electric Highwood Generating Station coal-fired power plant (250 MW) proposed to be located outside Great Falls, the proposed gas-fired Great Falls Energy Center (277 MW) power plant, and potential development of irrigation systems on cropland that is not now irrigated.

Table 4.1-2 shows the planned energy generation projects in the area. Available information on these and other reasonably foreseeable future actions is presented in more detail below.

Potential to Upgrade the Capacity of the MATL Proposed Transmission Line

MATL could upgrade the capacity of the proposed line from 300 MW to 400 MW in each direction. However, their end-to-end path rating as designated by WECC is for 300 MW (**Appendix M**).

Highwood Generating Station

Southern Montana Electric Generation and Transmission Cooperative, Inc. proposes to build a 250-MW coal-fired power plant and 6-MW wind generation facility, at a site east of Great Falls, Montana. **Figure 4.1-1** shows the proposed location of this project, which is known as the Highwood Generating Station, along with the new transmission line to connect at the Great Falls 230-kV Switchyard. Impacts from the proposed Highwood Generating Station are described in the *Final EIS for the Highwood Generating Station*, which was released in January 2007 (USDA Rural Utilities Service and DEQ 2007). DEQ and USDA issued a joint ROD in May 2007 and the air quality permit has been issued by DEQ.

TABLE 4.1-2
POTENTIAL GENERATION PROJECTS[1] IN THE VICINITY OF THE MATL LINE FROM NORTHWESTERN AND WAPA INTERCONNECTION QUEUES

Queue Position	County	Interconnect Point	In-Service Date[2]	Generating Facility Type	Output (MW)
Not Applicable	Cascade	Great Falls NW - Holter 100 kV Line	February 27, 2006	Wind	9
Application Approved	Cascade	Great Falls 230 kV Switchyard	March 31, 2009	Base Load- Coal Fired[3]	268
8	Pondera	South Cut Bank to Conrad Auto 115 kV	October 15, 2008	Wind	104
10	Liberty	69 kV line at Chester	December 1, 2007	Wind	20
11	Cascade	Rainbow Switchyard	December 31, 2011	Hydro	23
12	Teton	Dutton 69 kV Substation	August 1, 2007	Wind	18.9
13	Teton	Choteau Substation	December 31, 2009	Hydro	15
14	Cascade	Great Falls 230 kV Switchyard	Summer 2007	Gas Fired[4]	277
16	Glacier	Cut Bank 115 kV Substation	October 1, 2008	Wind	110
Unknown	Pondera	Conrad	December 1, 2008	Wind	250

Source: OASIS web site http://www.oatioasis.com/nwmt/nwmtdocs/Interconnection_queue.xls updated 11/21/2007.

1 Under FERC regulations on Large Generator Interconnection Agreements, customer names are confidential until agreements have been signed.

2 Dates are those given in the cited source.

3 Assumed to be Highwood Generating Station.

4 Assumed to be Great Falls Energy Center

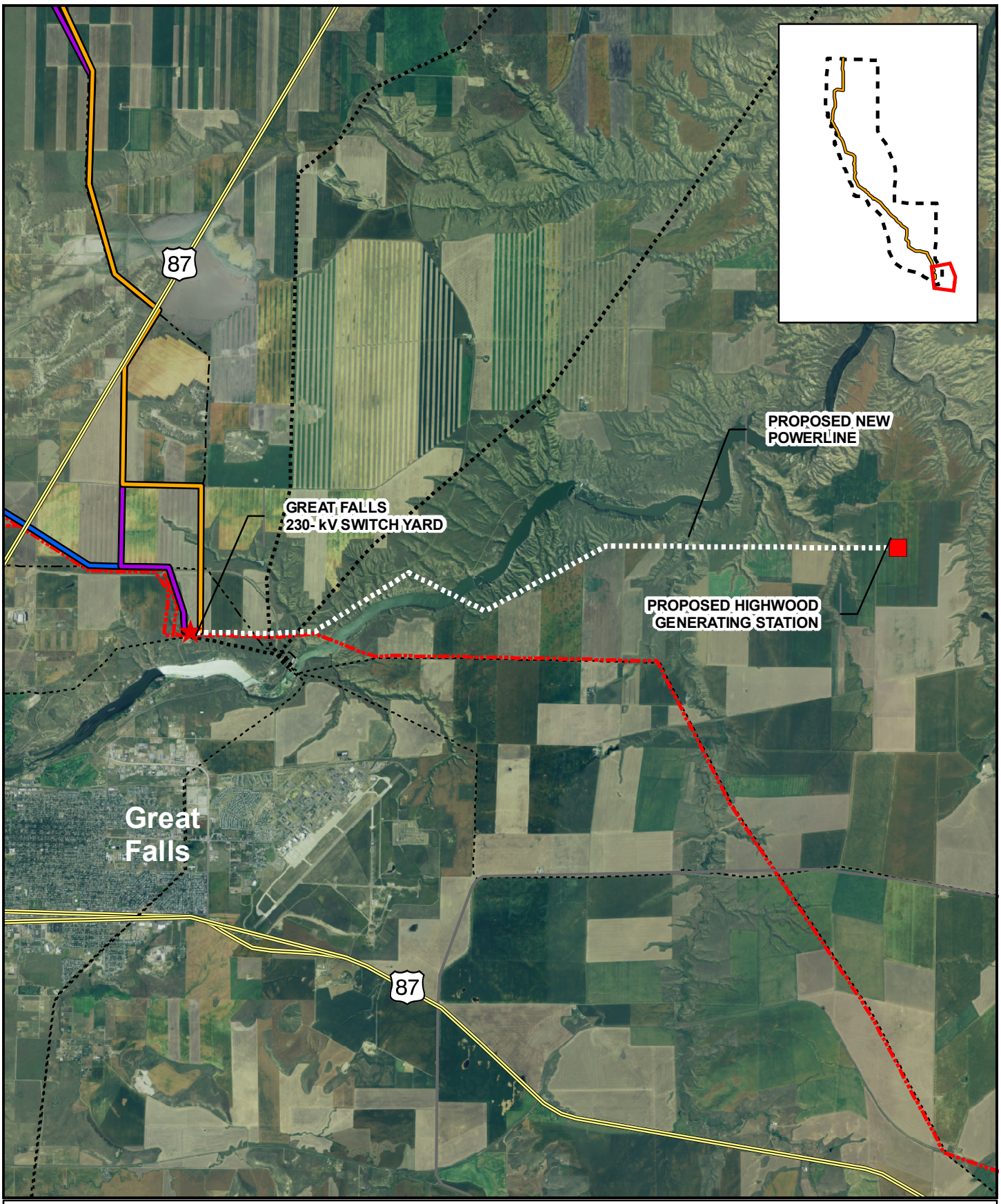


FIGURE 4.1-1
PROPOSED HIGHWOOD GENERATING STATION

N

0 1 Miles

LEGEND

- ALT2 - PROPOSED ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- 230kV POWERLINE
- 161kV POWERLINE
- 115kV POWERLINE
- 100kV POWERLINE
- ALIGNMENT END POINT
- MAJOR HIGHWAYS
- SECONDARY ROADS
- SECTION LINE

GIS map by Ed Madej -TTEMI-HE Fig4_1-1_MATL_Highwood_Generating_Station_110507.mxd

Great Falls Energy Partners – Great Falls Energy Center

Great Falls Energy Partners purchased the assets and permits for Montana First Megawatts from NorthWestern Energy in February 2007 and renamed their project the Great Falls Energy Center. The proposed project would include a gas-fired, combined cycle power plant capable of producing 275 MW with possible expansion for an additional 275 MW. An air quality permit was issued. The project would be located approximately 2 miles north of Great Falls and 2.2 miles west of the Great Falls 230-kV Switchyard. Impacts of this gas-fired generator were addressed in an EA for the original air quality permit (DEQ 2001) as well as in a revised air quality permit (DEQ 2006a).

Wind Farms with MATL Capacity

MATL offered two open seasons to bid on the available capacity (300 MW each direction). The first open season was held between February 3, 2005, and April 15, 2005. MATL received six bids.

The second open season occurred between June 9, 2006, and June 30, 2006. MATL accepted bids for 600 MW of firm capacity from four bidders, all potential developers of wind farms, summarized in **Table 4.1-1**. Two of the early bidders (GE Energy and TransCanada) have withdrawn their bids and did not respond during the second open season (Railton 2006; Thornton 2006). More detailed information on the wind farms appears below. This information was gleaned from newspaper articles and press releases, from FWS or MATL, or is based on professional judgment. The accuracy of the information cannot be confirmed; the location, size, and number of turbines are estimates using the best available information. The potential locations of most individual wind farms remain confidential, and wind farms may not be designed yet.

1. NaturEner USA – Glacier Wind Project

NaturEner USA has a guaranteed right to purchase 120 MW of capacity to transmit power northward from Cut Bank into Alberta. According to MATL (MATL 2006b), NaturEner USA may also transfer power from north to south. This project would be located between the Marias River north to Hjartarson Road and between McCormick and Sullivan Bridge roads. The wind farm would be on 12,000 acres in Glacier and Toole counties with 45 to 60 wind turbines. Once the construction is complete, it would take at least 15 technicians to operate and maintain year-round. The proposed location of the GlacierWind Project and additional anemometer locations are shown on **Figure 4.1-2**.

2. NaturEner Canada – Rim Rock Wind Farm
The Rim Rock Wind Farm would be in northwest Toole County on 15,000 acres of privately owned land. Naturener Canada has a guaranteed right to purchase 180 MW of capacity.

3. Wind Hunter LLC – Unnamed Wind Energy Project
Wind Hunter LLC has a guaranteed right to purchase 120 MW of capacity southward. Wind Hunter would likely construct a wind energy project in the Cut Bank area.

4. Invenergy Wind Montana – Unnamed Wind Energy Project
Invenergy Wind LLC has a guaranteed right to purchase 180 MW of capacity southward on the proposed MATL transmission line. Invenergy is interested in constructing other wind energy projects in Montana, potentially in the Cut Bank/Shelby/Conrad area.

Other Wind Farms
DEQ staff is aware of several other initiatives under way to develop wind farms or areas under investigation for wind farm development, as listed below. Because these projects are speculative, they are discussed generally.

Potential wind farm developments in early stages of planning include:

- A wind farm at Trunk Butte (Belgian Hill) would interconnect with NorthWestern Energy's Great Falls to Cut Bank transmission line. The size is unknown.
- A wind farm on Teton Ridge southwest of Dutton would be about 30 MW.

Other wind farms may connect to NorthWestern Energy and WAPA transmission lines. Information is available on developers currently pursuing interconnection agreements with NorthWestern Corporation and WAPA (**Table 4.1-2**). Many wind farm projects reach the stage of submitting an initial request for an interconnection study and, after the prospective developers learn the results, they withdraw the request to interconnect.

DEQ has observed anemometers on higher elevation terrain to the west and north of Conrad, between Cut Bank and the Marias River east of the Blackfeet Indian Reservation, a few miles north of Hay Lake north of Cut Bank, and just east of Route 214 about 15 to 20 miles north of Cut Bank (**Figure 4.1-2**). An anemometer does not necessarily indicate that a wind farm is being considered; only that someone is monitoring the wind.

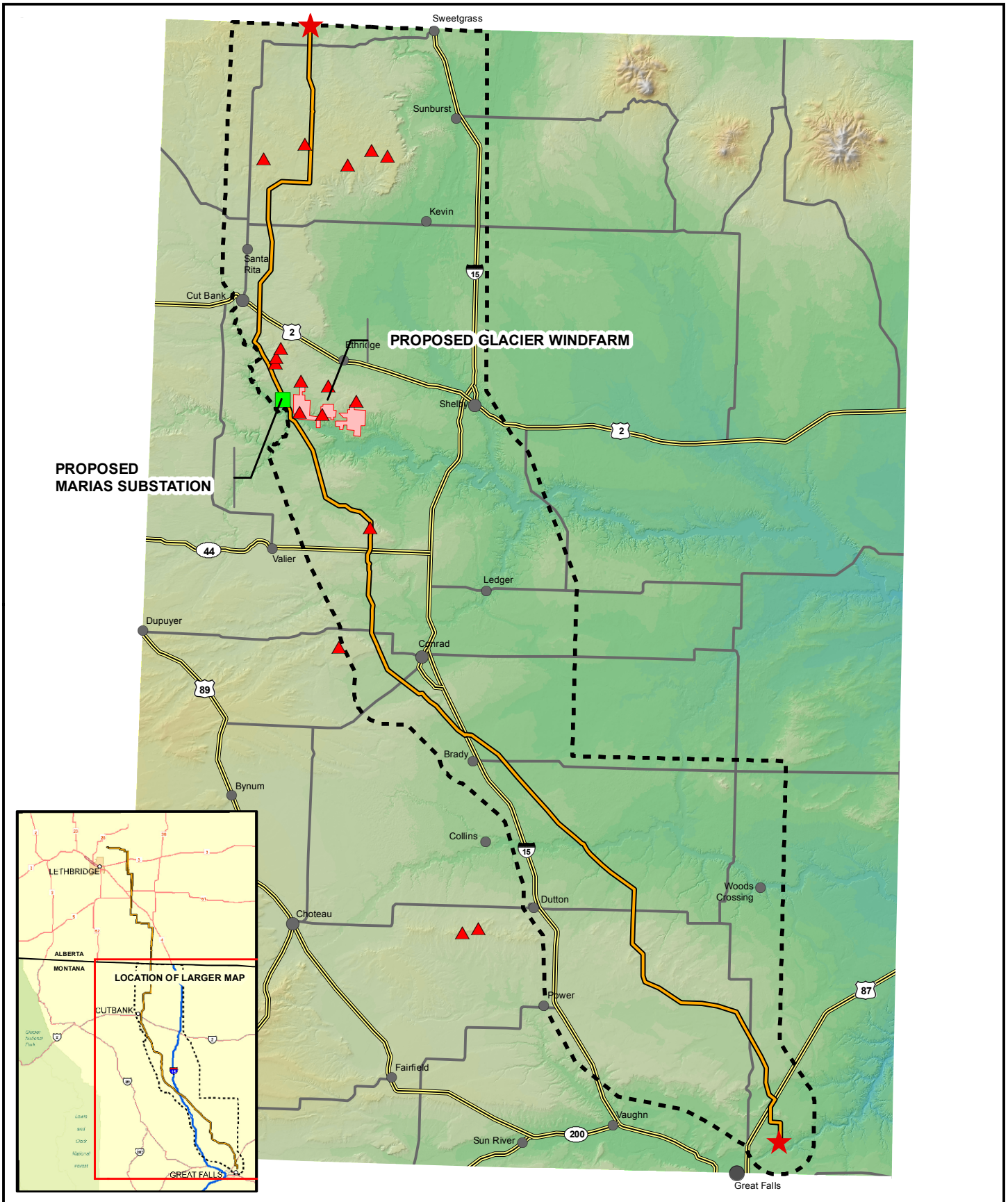


FIGURE 4.1-2
AREAS OF INTEREST
IN WIND FARM DEVELOPMENT

GIS map by Ed Madej -TTEMI-HE Fig4_1-2_MATL_Wind_Farms_091108.mxd

DEQ Analysis of Permitting and Review Requirements for Wind Farms

DEQ administers no permits specifically for wind farms as energy projects. Certain permits may, however, be necessary for proposed wind farms, depending on the locations of the roads, turbines, and power lines. These are listed in **Table 4.1-3**. It is possible that few if any state permits would be necessary if a project were on private land with no stream or wetland crossings or encroachments. If no permits are needed, DEQ would not prepare an environmental assessment (EA) or an EIS.

TABLE 4.1-3
MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PERMITS AND APPROVALS

Permit/Approval Name	Nature of Permit	Authority
Section 401 Water Quality Certification	Provides a review of potential adverse water quality impacts potentially associated with discharges of dredged or fill materials in wetlands and other waters of the U.S.	Section 401 of the Clean Water Act
MPDES Wastewater Discharge Permit	Permits construction and industrial activities that would result in the discharge of wastewater to waters of the state.	Montana Water Quality Act (75-5-401 et seq., MCA)
General Discharge Permit for Storm Water Associated with Construction Activity	Submit Notice of Intent for coverage under General Permit to authorize storm water discharges to surface waters of the state associated with the construction activities.	Montana Water Quality Act (75-5-401 et seq., MCA)
General Permit for Storm Water Discharges Associated with Industrial Activity	Permits storm water discharges from qualifying industrial activities.	Montana Water Quality Act (75-5-401 et seq., MCA)
Montana Joint Application: 310 Permit	Permits construction activities in or near perennial streams on public and private lands.	Montana Natural Streambed and Land Preservation Act (75-7-101 et seq., MCA)
Certificate of Compliance	Authorizes construction and operation of certain transmission lines with a design capacity greater than 69 kV.	Major Facility Siting Act (75-20-101 et seq., MCA)
Montana Joint Application: 318 Authorization short-term turbidity	Authorizes short-term narrative standards for turbidity associated with construction activities.	Montana Water Quality Act (75-5-101, MCA)
Public Water Supply Approval	Review of engineering plans and specifications for a new public water supply for more than 25 people daily for period of at least 60 days in a one-year period.	75-6-112, MCA: Plan Review and Approval
Open Cut Permit (if new gravel sources are needed for the project)	Permit to excavate 10,000 cubic yards or more total aggregate from one or more pits regardless of surface ownership.	Open Cut Mining Act (84-4-401 et seq., MCA)

DEQ does not maintain a comprehensive list of authorizations, permits, reviews, and approvals required by other state and Federal agencies, but a preliminary list is in **Table 4.1-4**. The Montana Department of Commerce (MDOC) also has information about general permits and licenses for doing business in Montana. The FWS enforces the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. No permit is required per se; however, FWS has developed guidelines for use by wind farm developers to help determine the level of study necessary to address avian mortality issues before a project is built.

The U.S. Department of Defense (DoD) reviews proposals for wind farms and transmission lines to ensure that excavation would not disturb buried cable connecting Minuteman missile silos or interfere with military radar. Entities seeking to develop wind energy projects on BLM-administered lands are required to consult with the DoD regarding the location of wind power projects and turbine siting as early in the planning process as appropriate. An interagency protocol agreement between the BLM and the DoD is being developed to establish a consultation process and to identify the scope of issues for consultation (BLM 2005a).

The Federal Communications Commission (FCC) has regulatory authority to ensure that wind turbines and power lines do not cause microwave, television, radio, telecommunications, or navigation interference. FCC also issues licenses to operate industrial radio service for fixed microwave stations.

Assumptions about Cumulative Effects from Wind Farm Development

For purposes of cumulative impact assessment from wind farms, it is conservatively assumed that: (1) the MATL line capacity is proposed to be 300 MW in each direction and that the line could be upgraded, allowing the line to handle 400 MW in each direction; (2) new wind farms would be built to use the total 800 MW (400 MW in each direction) capacity; and (3) 1.5 to 2 MW turbines would be used. Accordingly, 400 to 533 turbines might generate electricity that would transmit on the MATL line.

The cumulative impacts analysis for potential wind farms is heavily adapted from the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM 2005b) and refined for conditions found near the proposed MATL line. Because of the lack of detailed plans on the wind farms, site-specific issues associated with individual wind farms are not assessed in detail. Rather, the range of possible impacts is identified. The BLM EIS includes an extensive list of potential mitigation measures to reduce or eliminate impacts (**Appendix O**). These potential mitigations could be refined for conditions near the proposed MATL transmission line.

TABLE 4.1-4
AUTHORIZATIONS, PERMITS, REVIEWS, AND APPROVALS BY OTHER AGENCIES[1]

Action	Permit/Approval	Approving Authority/ Approving Agency	Statutory or Regulatory Reference
FEDERAL			
Power Line Construction and Operation on Land Under Federal Management	Right-of-Way (ROW) Grant	BLM/USFS	FLPMA 1976 (PL94-579); USC 1761-1771 and 43 CFR Part 2800
Transmission Line Interconnection	Interconnection Agreement	WAPA/BPA	Section 211 Federal Power Act, General Guidelines for Interconnection
NEPA Compliance to Grant ROW and WAPA Interconnection Agreement	EA and/or EIS	Federal Agencies	NEPA, CEQ 40 CFR Part 1500-et. seq.
Review and approval of State Highway permit application and support documentation for transmission lines in the Interstate Highway System right of way	Review and Approval authority	FHWA through MDT	23 CFR 1.23 and 1.27 USC Sections 116, 123, 315 (23 CFR Part 645 Subpart B), 23 CFR 77
Grant of ROW by BLM, USFS or Transmission Line Interconnection Agency	ESA compliance, Biological Assessment (BA), and Biological Opinion (BO)	USFWS	ESA, Section 7
Grant of ROW by BLM, USFS or Transmission Line Interconnection Agency	National Historic Preservation Act (NHPA) compliance, Section 106	BLM, WAPA, and Montana SHPO	NHPA of 1966, 36 CFR part 800, 16 USC 47
Tower location and height relative to air traffic corridors	Notice of Proposed Construction or Alteration	Federal Aviation Administration (FAA)	49 USC 1501; 13 CFR 77 Objects Affecting Navigable Airspace
Fill in a Wetland	404 permit	Army Corps of Engineers	CWA, Section 404
Construction in a navigable river or harbor	Section 10 permit	Army Corps of Engineers	River and Harbors Act of 1899
Crossing of Federally owned canals	Perpetual license for electric line crossings on Bureau of Reclamation land and canals	Bureau of Reclamation	
Oversees Federal agencies regarding impacts on cultural resources		Advisory Council on Historic Preservation	National Historic Preservation Act Section 106
Review to determine if there could be communications interference	Review	Federal Communications Commission	Communications Act of 1934, as amended, 47 CFR parts 301, 303(f).
STATE OF MONTANA			
Allows construction activity within a designated 100 year flood plain	Montana Joint Application; Flood Plain Development Permit	Montana DNRC or County Floodplain Coordinator.	Montana Floodplain and Floodway Management Act (76-5-401 to 406, MCA)
Construction activities on state trust lands and navigable waterways	Easement/Land Use License	Board of Land Commissioners; Montana DNRC	Title 77, MCA
Leasing of State Lands	State Land Lease	Board of Land Commissioners; Montana DNRC	Title 77, Chapter 6, MCA

TABLE 4.1-4
AUTHORIZATIONS, PERMITS, REVIEWS, AND APPROVALS BY OTHER AGENCIES[1]

Action	Permit/Approval	Approving Authority/ Approving Agency	Statutory or Regulatory Reference
Grant utility crossing permits for transmission line and access roads that may encroach on state maintained highways	Utility Crossing Permit	Montana Department of Transportation (MDT)	RW 131 and/or RW 20
Consults with project applicants and state agencies regarding impacts on cultural resources	Montana Antiquities Act consultation	Montana SHPO	Montana Antiquities Act (22-3-421 through 442, MCA)
Facility Construction	Building permits per relevant building codes	Montana Department of Labor and Industry, Building Codes Bureau	Title 50, Chapter 60 and Title 50, Chapter 74, MCA
COUNTY			
Containment, suppression and eradication of noxious weeds	Noxious Weed Management Plan	County Weed Control District	7-22-2101-2153, MCA
ROW easement grants and road crossing permits for county property and roadways	Easement grants and road crossing permit	County Commissioners	
Construction in or near perennial streams on public and private lands	Montana Joint Application: 310 Permit	Conservation District	Montana Natural Streambed and Land Preservation Act (75-7-101 et seq., MCA)

Notes:

1 This list is not comprehensive and not all of these agency actions would apply for all projects.

BLM – Bureau of Land Management

BPA – Bonneville Power Administration

CEQ – Council on Environmental Quality

CFR – Code of Federal Regulations

CWA – Clean Water Act

DNRC – Department of Natural Resources and Conservation (Montana)

EA – Environmental Assessment

EIS – Environmental Impact Statement

ESA – Endangered Species Act

FAA – Federal Aviation Administration

FHWA – Federal Highway Administration

FLPMA – Federal Land Policy Management Act

MCA – Montana Code Annotated

MDT – Montana Department of Transportation

NEPA – National Environmental Policy Act

NHPA – National Historic Preservation Act

ROW – Right of way

SHPO – State Historic Preservation Officer

USC – Unites Stated Code

USFS – United States Forest Service

USFWS – United States Fish and Wildlife Service

WAPA – Western Area Power Administration

Wind farms are likely to be located in windy areas, within about 30 to 40 miles of a transmission line with available capacity, and where agreements can be negotiated with landowners.

Currently many commercial wind farms are using individual turbines with the ability to generate about 1.5 MW to 2 MW. Larger, more efficient models are in development, but wind farms with smaller generators are still being constructed because the most cost efficient turbines for large-scale development seem to be about 1 to 2 MW.

Development of a wind farm is likely to involve establishing site access; constructing roads; removing vegetation; excavating; constructing towers; and installing turbines, control buildings, meteorological towers, substations, and transmission lines. Construction may take less than a year to several years. Access roads would typically be a minimum of 10 feet wide or as much as 30 feet wide. Existing public or private roadways may be altered to accommodate heavy or oversized vehicles. Based on experience, the final footprint for the above ground facilities is likely to be no more than 10 percent of the total acreage of the wind farm site (BLM 2005b).

As of 2007, the proposed Valley County Wind Energy Project in northeastern Montana (outside the Project study area) included 114 1.5-MW turbines and covers 6,756 total acres to generate 170 MW. The Supplemental EA (BLM and DNRC 2007) for the wind farm estimated that a total of 244.7 acres would be disturbed for all activities associated with the wind farm including operation and maintenance buildings, access roads, turbine foundations, collector system, substation, staging areas, etc. This amounts to less than 4 percent of the total wind farm area, and approximately 2.15 acres disturbed per turbine (BLM and DNRC 2007). Permanent ground disturbance for the Valley County Wind Energy Project would total about 59 acres (BLM and DNRC 2007), or approximately 0.5 acres per turbine.

During wind farm operation, a 6- to 10-person maintenance crew would likely work at larger sites (Steinhower 2004); smaller sites might just have people on call. Maintenance includes inspection, lubrication, painting, or major overhauls. Technological advances may lead to replacing turbines or blades for efficiency.

Facilities may be removed and recycled when no longer needed. If decommissioning occurs, disturbed land areas could be restored to original grade and reseeded or replanted. During dismantling of electrical substations and storage buildings, the site could be inspected for industrial contamination from minor spills or leaks and decontaminated as necessary.

4.2 Cumulative Impacts on Land Use and Infrastructure

Land use in the area would be affected by projects that connect to the MATL transmission line (including wind farms) or enter the Great Falls 230-kV Switchyard (new transmission lines and upgrades). Public comment had identified a public concern regarding the impacts on land uses from wind farm development. These activities have been included in the cumulative effects analysis for land use and infrastructure.

Past, present, and reasonably foreseeable future actions identified in Section 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on land uses.

Past and Present Actions

Transmission lines (see Section 4.1.2), smaller power lines, oil and gas well access, pipelines, communication lines and towers, military installations, and roads have affected, and would continue to affect, land uses in the analysis area for this resource. Depending on their location, these activities may continue to interfere with farming operations, remove farmland from production, and contribute to increased traffic on roads and highways. Transmission lines, smaller power lines, and communication towers may continue to pose obstacles to aircraft.

Reasonably Foreseeable Future Actions

Future transmission line upgrades would not result in cumulative impacts on land use. Although the structures on the rebuild/upgrade of WAPA's Great Falls to Havre transmission line would be slightly wider than those on the existing line, impacts are expected to be similar to those on the existing line. The H-frame line is located in grain fields and rangeland not far from the Rainbow substation and is one of the lines that collectively make farming in the area more difficult. Additional information on this project can be found in the report "*Final Environmental Assessment Havre-Rainbow Transmission Line Rebuild Project*" (WAPA 2007). Similarly, any future upgrade of the MATL transmission line should not result in additional land use impacts because there would be no change to the support structures.

Future maintenance of power lines and pipelines would be infrequent and would not add greatly to traffic on area roads. Traffic would increase from reasonably foreseeable projects as workers commute and fuel and supplies are delivered.

Development of major projects such as the Highwood Generating Station and Great Falls Energy Center typically results in long-term land use changes on project sites. The Highwood Generating Station would convert about 545 acres from crop production to

industrial use (USDA Rural Utilities Service and DEQ 2007), while the Great Falls Energy Center would occupy a site of about 55 acres that was previously zoned for industrial use (Ecke 2007). Interconnecting transmission lines, rail spurs, and pipelines associated with these large projects also could disrupt land uses. A 230-kV interconnecting transmission line associated with the Highwood Generating Station would cross rangeland and cropland to connect the generating station with the Great Falls Switchyard (**Figure 4.1-1**). This would add to the lines entering and exiting the substation and could interfere further with farming activities near the switchyard.

Construction activities associated with reasonably foreseeable future actions could cause a relatively short-term decrease in the level of service provided by local roadways during the construction period. It is possible that local roads might require fortification of bridges and removal of obstructions to accommodate large and heavy equipment, such as wind turbine components. Construction activities would temporarily affect the recreation setting through noise, dust, traffic, and the presence of a construction workforce. People engaged in activities where solitude is important could be affected the most. Some parks and campsites may have increased use by workers for temporary accommodations during project construction. New access roads could also increase the potential for trespass onto private land closed to hunting. Most long-term effects on recreational settings would relate to visual disturbances. Persons who may otherwise use areas for undisturbed recreational experiences may decide to go elsewhere.

Wind Farm Effects on Land Uses

Most of the areas close to the proposed MATL line where wind farms might be located are privately owned, as indicated in Section 3.1.2 and **Figures 3.1-1, 3.1-2,** and **3.1-3**. Because of turbine spacing, only a small percentage of land would be taken out of use. Depending on the location, size, and design of a wind farm, wind development is compatible with a wide variety of land uses and generally would not preclude recreation, wildlife habitat conservation, military activities, livestock grazing, oil and gas leasing, dry land farming, or other activities that currently occur within the proposed Project area. However, recreation, wildlife habitat conservation, grazing, oil and gas drilling, and farming activities may be modified due to the presence of wind turbines and access roads.

As described above, a recent environmental assessment for a wind farm in northeastern Montana indicated that installation of wind turbines and construction of associated wind farm facilities would temporarily disturb about 2.15 acres per wind turbine and would permanently occupy about 0.5 acres per wind turbine (BLM and DNRC 2007). Given the 400 to 533 turbines assumed to be built by wind farm developers that have contracted for capacity on the MATL transmission line, approximately 860 to 1,146 acres could be disturbed for wind farm construction. About 0.5 acres per turbine, or a total of 200 to 267 acres of this land would be permanently dedicated to use for wind farms (for

example, the land occupied by turbines and support facilities) and, thus, converted from its existing uses. Additional wind farm development that could occur unrelated to the MATL line would increase land use impacts proportionately. NaturEner USA has a guaranteed right to purchase 120 MW of capacity on the MATL line but has negotiated with NorthWestern for transmission capacity to support their current Glacier Wind Project.

Because wind farms are constructed with landowner agreement they would not create a conflict with current and planned agricultural uses of surrounding land, with the exception of aerial crop dusting. Wind farms could adversely affect crop dusting on land adjacent to wind farms.

Grazing and the operation of agricultural equipment could continue around and between wind turbines, though there would be additional obstacles to farm around. Guy wires for anemometers associated with wind farms would occupy only a few square feet and would be installed with landowner permission. They would have a negligible impact on the land area in agricultural use, but plowing and harvesting patterns might need to be modified in the immediate vicinity of the turbines and roads.

Construction and future decommissioning of wind farms could temporarily disrupt livestock access to supplementary feeding and watering stations (BLM et al. 2006). Upon wind farm decommissioning, land converted from cropland and pasture/ rangeland use could be returned to these prior uses. No permanent land use impacts would be expected when the wind farms are decommissioned (BLM et al. 2006).

CRP land disturbance would be minimal over the course of the operational life of wind farms because these lands are set aside for conservation and are usually not used for agricultural purposes. The largest impacts to CRP would be ground disturbance during the construction and decommissioning phases.

Compatibility of Wind Farms with Special Management Areas

BLM Areas of Critical Environmental Concern (ACEC), such as the Kevin Rim ACEC, and the FWS Benton Lake National Wildlife Refuge are unsuitable for wind farm development and would be excluded from consideration for development per agency management plans and direction.

Wind Farm Effects on Aviation

Additional elevated structures in the airspace would be a cumulative element for pilots to avoid.

4.3 Cumulative Impacts on Geology and Soils

Geology and soils in the area would be affected by projects that cause soil erosion or soil disturbance.

Past, present, and reasonably foreseeable future actions identified in Section 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on geology and soils. The review indicated that simply upgrading the capacity of the MATL transmission line would not contribute cumulative effects on geology and soils.

There could be cumulative impacts on geology and soils in the Project study area from the construction and operation of future wind farms and new roads, and the increased need for new or expanded sand, gravel, and concrete operations. Most potential cumulative impacts from soil erosion, landslides, mixing of soil horizons, and soil compaction would have minimal extent, largely being limited to the areas actually disturbed. Erosion and sediment controls would be required on construction-related disturbances of more than 1 acre.

Construction activities that would affect geologic resources and soils include vegetation clearing, excavation, blasting, trenching, grading, and heavy vehicle traffic.

Sand and gravel and/or quarry stone would likely be mined close to the potential construction site, potentially creating soil erosion and mixing of soil horizons.

Construction could activate geological hazards and increase slope instability. Activities could increase the slope, cause toe-cutting at the base of slopes, or increase pore pressure, which weakens the strength of soils on slopes or causes accelerated soil erosion.

Surface disturbance could cause soil erosion, which in turn can result in soil nutrient loss and degradation of water quality in nearby surface water bodies. The magnitude of the impact depends on the project size, erosion potential of the soil, local terrain, vegetative cover, and the distance from a site to nearby surface water bodies. DEQ would require control of storm water during construction, reducing the potential for transport of eroded soils.

4.4 Cumulative Impacts Related to Hazardous Materials

Past, present, and reasonably foreseeable future actions identified in Sections 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts related to hazardous materials.

Construction, operation, and decommissioning associated with reasonably foreseeable future actions (including Highwood Generating Station, wind farms, Great Falls Energy Center, and transmission line upgrades) would require the use of some hazardous materials, although the variety and amounts of hazardous materials present during operation would be minimal. Types of hazardous materials that may be used include fuels (e.g., gasoline, diesel fuel), lubricants, cleaning solvents, paints, pesticides, wood preservatives, and explosives. These same types of materials would also continue to be used in farming, weed management, maintenance of roads and rail facilities, and other ongoing activities in the area. Wastes would be managed as required by state and Federal law and there would be a low probability that any serious contamination would occur.

4.5 Cumulative Impacts on EMF and Health and Safety

Past, present, and reasonably foreseeable future actions that could affect EMF levels near residences are considered in this cumulative impacts analysis. Additionally, other potential impacts on occupational and public safety are considered. There public concern about impacts on public safety from wind farms.

Residences within ¼ mile of the proposed MATL transmission line corridor may experience cumulative EMF impacts if additional energy-transmission projects are developed nearby.

If the line capacity were increased to 400 MW in each direction, the electric field at the edge of the right-of-way would increase, and the mean magnetic field would also be similar or slightly higher based on the increased wattage. Electric field strength would remain below the state standard of 1 kV/m at the edge of the right-of-way in subdivided and residential areas. There is no Federal standard for EMF. Sensitive stationary receptors could be exposed to magnetic fields greater than the 1 to 2 mG range, a newly suggested standard (BioInitiative Working Group 2007). Collector systems and transmission lines for wind farms could contribute some additional EMF impacts.

Potential effects on occupational health and safety from construction and operation of reasonably foreseeable future actions would be limited. Nevertheless, with the unique occupational hazards associated with heavy construction, wind farms, and the electric power industry, fatalities and injuries from on-the-job accidents could occur.

4.6 Cumulative Impacts on Water Resources

Past, present, and reasonably foreseeable future actions described in Sections 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on water resources.

Past and present actions potentially affecting water resources in the vicinity of the analysis area include ongoing weed management, fertilization, crop production, grazing, road use and maintenance, and waterway modifications for stock watering. These activities can result in surface water flow alterations, water diversions, and stream bank modification and destabilization. Weed control and fertilization can introduce pesticides, nutrients, and total dissolved solids (salinity) into water supplies. Irrigation and waterway modifications for stock can result in increased salinity and flow reduction due to stream channel obstructions and diversions and saline seep. Some grazing practices result in sedimentation to surface water due to soil destabilization from reduced vegetation. Maintenance and use of roads at river and stream crossings can destabilize banks and increase sedimentation to surface water. These effects are commonly seen in agricultural areas.

DEQ has determined that seven water bodies in the analysis area have impaired or threatened beneficial uses by one or more of the activities described above: Missouri River, Benton Lake, Lake Creek, Teton River, Pondera Coulee, Cut Bank Creek, and Old Maids Coulee. These water bodies and their impairment causes and sources are described in **Appendix I**. Two of these water bodies, the Teton River and Pondera Coulee, would be crossed by all action alternatives. The Teton River is classified as Category 4A: "all TMDLs (total maximum daily loads) needed to rectify all identified threats or impairments have been completed and approved but impaired beneficial uses have not yet achieved fully supporting status." Pondera Coulee is classified as Category 5: "one or more applicable beneficial uses have been assessed as being impaired or threatened and a TMDL is required."

Future construction activities in the region, including construction of wind farms, could affect streams and lakes by

- temporarily increasing soil erosion and stormwater runoff due to ground-disturbing activities, heavy equipment traffic, and extraction of geologic materials from borrow areas or quarries;
- temporarily or permanently diverting surface water flows by access road systems, storm water control systems, or excavation activities;
- temporarily or permanently altering the interaction between hydrologically interconnected groundwater and surface water;

- temporarily reducing stream flows due to water withdrawals for construction activities (for example, for concrete preparation and dust control);
- temporarily increasing discharges of wastewater or sanitary water; and increasing the short-term potential for runoff or spillage of fertilizers, pesticides, and
- other hazardous materials used in site preparation, construction, and post-construction revegetation.

In general, impacts from construction activities associated with reasonably foreseeable future actions would be similar to impacts from construction of the proposed MATL transmission line (Section 3.5.3).

These construction activities, when combined with the potential adverse impacts from the proposed Project and the effects of other present and past actions in the analysis area, could cumulatively increase sediment and other pollutants in water resources and potentially affect the quantity and quality of available water resources, cumulatively increasing the possibility of impairment of one or more beneficial uses. However, because most actions would be separated in time or space and because mitigation measures would be employed to reduce the potential for sedimentation and contaminant discharge, these adverse cumulative impacts are likely to be minor and short term.

Reasonably foreseeable future actions that could have long-term effects on stream flows and water quality in the region include potential expansion of irrigated agriculture and the operation of the Highwood Generating Station and the Great Falls Energy Center. The Highwood Generating Station would require 5,175 acre-feet of water per year (USDA Rural Utilities Service and DEQ 2007) for operation and the proposed Great Falls Energy Center would require about 875 acre-feet per year (Ecke 2007). In both cases, about 80% of the water demand would be used consumptively, while the remaining water would be discharged as wastewater to the Great Falls wastewater treatment plant. Estimates of water consumption by potential future irrigation are not available. There is little potential for cumulative long-term impacts with the proposed Project because operation of the MATL transmission line would have negligible water requirements and would not discharge wastewater or contaminated stormwater.

Few potential cumulative adverse impacts to water resources were identified from future operation of wind farms and none were identified for future upgrades of electric transmission lines. Wind farm operations would have minimal impact on water quantity and quality, and future upgrades of electric transmission lines (including the proposed MATL line) would not affect water resources because there would be minimal requirements for water use or wastewater discharge, and storm water controls would be required during construction.

4.7 Cumulative Impacts on Wetlands and Floodplains

Past, present, and reasonably foreseeable future actions identified in Sections 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on wetlands and floodplains.

Past and present actions (e.g., farming, road construction) have disturbed many wetlands in the area through plowing or construction activities that destroyed them or that contributed soil erosion or soil disturbance that impacted them indirectly. Ongoing activities (e.g., use of pesticides or fertilizers in farming) have also impacted wetlands in the area.

Wind farm construction and construction associated with other projects identified as reasonably foreseeable future actions (Section 4.1.3) might result in cumulative impacts on wetlands and floodplains. During construction, access roads and transmission lines might cross wetlands and floodplains. As a result, the wetland and aquatic biota could be affected if construction of stream crossings for access routes or the location of a transmission line support tower in a wetland or floodplain is unavoidable.

Construction in wetlands, floodplains, or other aquatic habitats would in most cases require proper permits and review by local conservation districts, DEQ, FWP, and possibly the Corps of Engineers. As part of the permitting process, any such projects (e.g., wind farms) would be developed with mitigating measures to reduce disturbance to the wetlands or floodplains. Upgrading capacity on the MATL line or other transmission lines would not be expected to contribute cumulative effects to wetlands or floodplains, as there would be little, if any, construction as part of the upgrade and, thus, no impacts.

Thus, with successful implementation of mitigation measures, adverse cumulative impacts to wetlands and floodplains are likely to be minor, indirect, and short term.

4.8 Cumulative Impacts on Vegetation

Past, present, and reasonably foreseeable future actions described in Sections 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on vegetation.

Vegetation in the area can be directly affected by projects that remove it during construction and indirectly affected by projects that cause soil erosion or other soil disturbance.

Most of the native vegetation communities in the vicinity of the proposed MATL transmission line have been converted to farmland. In some areas where native vegetation is still present, it is subject to grazing pressure. Grazing may change

community structure and composition and provide disturbed areas for weedy species establishment. Past development of facilities such as pipelines, oil wells, transmission lines, and access roads has also reduced native vegetation communities.

Vegetation communities would likely be disturbed, fragmented, or reduced by projects such as the Highwood Generating Station and as the reasonably foreseeable future development of wind farms and irrigation systems occurs in the region. Upgrading the capacity of the MATL transmission line would not, however, contribute cumulative effects on vegetation as it would not involve significant construction activities.

During construction of reasonably foreseeable future actions, plant communities would be destroyed on portions of the project sites. Impacts on vegetation communities could also occur from soil compaction, loss of topsoil, and removal of or reductions in the seed bank. Clearing of trees may also be required. Short-term disturbance for construction of wind farms (including turbines, access roads, other support facilities) would total about 2.15 acres per turbine and represent no more than about 5 to 10 percent of the wind farm site (Section 4.1.3). Over the long term, wind farm development would modify land use (thus affecting vegetation) of about 0.5 acres of land per turbine. Careful siting of wind turbines and support facilities could reduce removal of and other impacts to vegetation.

During very dry periods dust from construction may be relatively high at sites of future development and might affect vegetation immediately surrounding the project area. Dust cover on leaves has been shown to increase leaf temperature, which is one of the major parameters controlling photosynthesis (Eller 1977; Hirano et al. 1995), increase water loss (Ricks and Williams 1974; Eveling and Bataille 1984), and decrease carbon dioxide (CO_2) uptake (Thompson et al. 1984; Hirano et al. 1995). Dust coating on leaves may also reduce photosynthesis through shading (Hirano et al. 1995; Thompson et al. 1984) and may physically remove cuticular wax, which may lead to increased water loss and wilting (Eveling and Bataille 1984). Implementation of mitigation measures to control dust could ensure that impacts from dust during construction are short term and localized to the immediate area.

Hazardous materials or wastes (such as waste paints and degreasing agents) may be generated during construction and operation of reasonably foreseeable future actions. Accidental spills or releases of fuel, hazardous materials, and pesticides could adversely impact vegetation on site or could migrate off site and affect vegetation in surrounding areas. After clean up of accidental spills or releases, reestablishment of vegetation might be delayed due to residual soil contamination. Implementation of hazardous materials handling and refueling protection requirements should limit the level of such spills or releases and their impact on vegetation.

Unauthorized off-highway vehicle use, illegal dumping, and illegal collection of plants (PBS&J 2002) could disturb vegetation. Visitors and off-highway vehicles may crush or trample vegetation or destroy roots and other below ground plant structures (Payne et al. 1983; Cole 1995; Douglass et al. 1999). Increased human activity also can increase the potential for fires that may allow invasive species to invade native plant communities and become the dominant species.

With implementation of reclamation and mitigation practices (e.g., weed control programs), cumulative impacts to native vegetation could be minor.

4.9 Cumulative Impacts on Wildlife

Past, present, and reasonably foreseeable future actions described in Sections 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on wildlife. Public comments received on the March 2007 document identified a specific concern regarding the impacts on wildlife from future development of wind farms.

Past activities have affected wildlife within the analysis area through loss of native grassland habitat due to agricultural development, loss of wetland habitat due to drainage or conversion for agriculture, and minor loss in habitat and disturbance related to oil and gas development and construction of associated pipelines and transmission lines. These activities have resulted in displacement of individual animals due primarily to habitat loss; however, many wildlife species have adapted to habitat changes and, thus, have not been negatively affected at the population level. Wildlife species that have experienced the greatest impacts from past activities are those that are dependent on native grassland habitats, such as certain birds that have experienced a loss of their grassland nesting habitat.

Agriculture is currently the predominant land use within the analysis area. Since much of the area has already been converted to such use, conversion of grassland and wetland areas to agriculture no longer occurs at a high rate. Thus, land use within the region is relatively stable, and current land use practices do not generally further negatively affect wildlife.

Wildlife in the area could be affected by reasonably foreseeable future actions including the Highwood Generating Station, Great Falls Energy Center, wind farms, and new transmission lines. Upgrading the capacity of the MATL transmission line would not contribute cumulative effects to wildlife as it would not involve significant construction activities that would reduce habitat or operational changes that would impact animal behavior.

Construction of reasonably foreseeable future actions could cause the direct injury or death of animals that are not mobile enough to avoid construction operations (e.g., reptiles, small mammals, young), that use burrows (e.g., ground squirrels, burrowing owls), or that are defending nest sites (e.g., ground-nesting birds). More mobile animals, such as deer and adult birds, would move out of the area. It is assumed, however, that adjacent habitats are at carrying capacity and could not support additional biota from the construction areas. Thus, the subsequent competition for resources in adjacent habitats would likely preclude the incorporation of the displaced individuals into the resident populations. Construction could also affect wildlife by disturbing normal behavioral activities such as foraging, mating, and nesting.

Reasonably foreseeable future actions that developed new permanent facilities could result in some permanent change in existing wildlife habitat. Habitat may be reduced, altered, or fragmented, which could affect the diversity and abundance of area wildlife. Revegetation could, however, return some areas disturbed during construction to a habitat that could again support wildlife. The amount of habitat that would be permanently disturbed would, in general, be limited to the area of the footprint of the project. Birds, however, might avoid the area near transmission lines. For example, bird densities along a transmission line right-of-way in Oregon that exhibited noise levels of approximately 50 dB(A) were reported to be reduced up to 25 percent (Lee and Griffith 1978).

Wildlife may also be affected if a facility interferes with migratory movements. While migrating birds and bats are normally expected to fly around most individual buildings and continue their migratory movement (except for potential encounters with wind turbines or wire strikes as discussed below), the presence of a facility could disrupt movements of terrestrial wildlife. For example, herd animals, such as deer and pronghorn antelope, could be affected if facilities are placed along migration paths between winter and summer ranges or in fawning areas (NWCC 2002).

In addition to the impacts discussed above, operation of reasonably foreseeable future facilities such as the Highwood Generating Station could result in long-term increase in mortality of terrestrial mammals due to rail strikes and increased traffic on access roads. There is also some potential for increased mortality to birds and bats from encounters with wind turbines, as discussed below, and some bird mortality from wire strikes would be expected where the proposed transmission line associated with the Highwood Generating Station would cross the Missouri River.

Habitat available for birds could be reduced or modified in wind farms. Both decreases and increases in bird population densities have been reported at wind farms in different areas. In southwestern Minnesota, lower bird population densities were reported in areas that were within 262 feet of the turbines than in control areas and areas that were 591 feet away from turbines (Leddy et al. 1999). A grassland bird displacement study at

the Judith Gap Energy Center in Wheatland County, Montana, however, found that construction of the wind farm did not negatively impact numbers of breeding grassland birds (TRC 2008). Point counts performed before and after construction of that facility showed a 54% increase in number of birds detected in the vicinity of the turbines compared to a 20% increase in control plots with no turbines. Operation of wind farms could also impact birds through collisions (as discussed below).

The cumulative impact of habitat loss as described above could affect some wildlife, particularly grassland-dependent birds, but it would not likely reduce the viability of wildlife populations within the region, as structures would reduce habitat by a relatively small amount and would not likely consume critical habitats such as large expanses of grasslands or riparian areas.

Collision Hazards for Birds and Bats

Wind turbines, meteorological towers and associated guy wires, and overhead distribution lines represent a potential collision hazard to birds and bats.

The number of turbines associated with a wind project has been identified as the major variable associated with potential avian mortality (EFSEC 2003). Erickson et al. (2001) projected a total of 33,000 bird fatalities per year from the estimated 15,000 operating wind turbines (by the end of 2001) in the United States, an average of 2.2 avian fatalities per turbine per year for all species combined. **Table 4.9-1** summarizes reported avian fatality rates at a number of wind energy projects. Local conditions heavily influence mortality at any site; the number of bird fatalities per turbine per year in individual studies ranged from none (at Searsburg, Vermont, and Algona, Iowa) to 7.3 (at Buffalo Mountain Phase I, Tennessee).

Judith Gap Energy Center, located in Wheatland County, Montana, was completed in October 2005. Surveys for the 90-turbine wind energy project were completed during the fall 2006 and spring 2007 migration periods (TRC 2008). Estimated turbine-related fatalities at this wind farm during the study period were 406 birds (4.52/turbine). The results of this study suggest that avian fatality rates at this wind farm are similar to fatality rates at other wind plants around the U.S.

Based on data collected outside California, the expected avian mortality at wind farms would range from 0 to 4.52 birds per turbine per year. For wind turbines potentially built by developers with contracted capacity on the proposed MATL transmission line (400 to 533 turbines), this would equate to approximately 720 to 960 bird fatalities per year. For other reasonably foreseeable wind farms in the area (about 500 MW generation capacity derived from an estimated 252 to 335 wind turbines), this would equate to an additional 454 to 603 bird fatalities per year.

Fatalities of raptors are of special concern because of their generally low numbers and protected status. Raptor mortality estimates based on data collected from the various wind farms in the United States indicate an average of 0.033 fatalities per turbine per year (Erickson et al. 2001). Except at the Altamont Pass in California, the number of raptors killed at any facility is small (**Table 4.9-1**; NWCC 2002). Some California wind farm sites have unusually high raptor fatalities due to topography, high raptor densities, and possibly older turbine technology (Kingsley and Whittam 2003). Excluding California, raptor fatalities were estimated at 0.006 per turbine per year (Erickson et al. 2001).

Table 3.8-4 lists the raptors observed in the Kevin Rim Area in Toole County. Also, as indicated in Section 3.8.2.2, raptors have been observed during field investigations for the proposed MATL line. Based on the estimated total U.S. average raptor fatalities of 0.033 per turbine per year (Erickson et al. 2001), 13 to 18 annual raptor fatalities would be projected for the 400 to 533 operational turbines in the wind farms with contracted capacity on the proposed MATL line and 8 to 11 raptor fatalities would be projected for other wind farms that might be developed in the area. Excluding values of average raptor fatalities in California (Erickson et al. 2001), raptor fatalities would be estimated at 2 to 3 annually for the turbines potentially associated with the proposed MATL line and 1 to 2 annually for other wind farms that might be developed in the area.

Of the 15 bat species reported in Montana, 8 are likely to occur in the project study area (**Table 3.8-2**). **Table 4.9-2** summarizes data on bat fatalities observed at wind farms. Wildlife surveys at the Judith Gap Energy Center Project in Wheatland County, Montana, during the fall 2006 and spring 2007 migration periods (TRC 2008) estimated turbine-related fatalities of 1,206 bats (13.40/turbine). These results suggest that estimated fatality rates for bats are higher than observed in other studies in the western U.S. Based on the range of fatalities indicated in Table 4.9-2 for wind farms in non-forested areas (i.e., not including Buffalo Mountain in east Tennessee) (0.07 to 13.4 per turbine per year), the 400 to 533 turbines in the wind farms with contracted capacity on the proposed MATL line could cause estimated bat mortalities of 28 to 7,142 per year. In addition, other wind farms that might be developed in the area could cause estimated bat mortalities of 18 to 4,550 annually.

The cumulative impact from collisions from reasonably foreseeable future actions when added to those of the proposed MATL transmission line and past and current activities could cause a small reduction in population size for birds and bats. These impacts may, however, be reduced by employing careful siting practices and other mitigation measures.

TABLE 4.9-1
AVIAN FATALITY RATES OBSERVED AT SOME WIND ENERGY PROJECTS

Wind Farm	State	No. of Turbines	Bird Fatalities per Turbine per Yr[b]	Bird Fatalities per 100,000 m^2 of RSA per Yr[b]	Raptor Fatalities per Turbine per Yr[b]	Raptor Fatalities per 100,000 m^2 of RSA per Yr[b]
Altamont Pass	CA	5,400 (in 2001), 7,340 (in early 1990s)	0.33 to 0.87, 0.05 to 0.1, 0.19	NA	0.16 to 0.24, 0.007 to 0.1 0.048, 0.1	9.0 to 22.0 1.0 to 2.0[c]
Buffalo Mountain Phase 1	TN	3	7.3	NA	0.0	NA
Buffalo Mountain Phase 2	TN	15	1.8	NA	0.0	NA
Buffalo Ridge (all phases)	MN	354	2.8	161.0	NA	NA
Buffalo Ridge Phase I	MN	73	0.33 to 0.66, 0.98	NA	0.01	NA
Buffalo Ridge Phase 2	MN	143	2.27	NA	0.0	NA
Buffalo Ridge Phase 3	MN	138	4.45	NA	0.0	NA
Foote Creek Rim	WY	69	1.5, 1.75	108.0	0.03, 0.036	3.0, 0,3[c]
Green Mountain (Searsburg)	VT	11	0.0	0.0	0.0	0.0
IDWGP (Algona)	IA	3	0.0	0.0	0.0	0.0
Judith Gap	MT	90	4.52	NA	0.14	NA
Klondike	OR	16	1.42	NA	0.0	NA
Montezuma Hills	CA	600	NA	NA	0.48	NA
Mountaineer Wind Energy Center	WV	44	4.04	NA	0.33	NA
Nine Canyon Wind Energy Project	WA	37	3.59	119.8	0.08	2.6
Princeton	MA	8	0.0	0.0	0.0	0.0
San Gorgonio	CA	2,900	2.31	NA	0.01	NA
Somerset County	PA	8	0.0	0.0	0.0	0.0
Stateline	OR/WA	454	1.7	96,6	0.05	NA
Vansycle	OR	38	0.63	38.0	0.0	0.0
Wisconsin	WI	31	2.83	73.3	0.02	NA

Abbreviations: IDWGP = Iowa Distributed Wind Generation Project; NA = not applicable (not calculated or appropriate); RSA = rotor-swept area.

[b] Multiple values are included if there were results from more than one study.

[c] Golden eagles only.

Sources: BLM (2005b); Curry and Kerlinger (2004a,b); Erickson et al. (2001, 2002, 2003a,b); Fiedler et al. (2007); Johnson et al. (2002, 2003a); Kerns and Kerlinger (2004); Osborn et al. (2000); Smallwood and Thelander 2004; Strickland et al., (200la,b); Thelander and Rugge (2001); TRC (2008); Young et al. (2003a).

TABLE 4.9-2
BAT FATALITY RATES OBSERVED AT WIND ENERGY PROJECTS

Wind Resource Area	State	No. of Turbines	Estimated No. of Bat Fatalities per Turbine per Year[a]	Estimated No. of Bat Fatalities per 100,000 m^2 of RSA[b] per Year
Buffalo Mountain Phase 1	TN	3	20.8	NAc
Buffalo Mountain Phase 2	TN	15	63.9	NA
Buffalo Ridge	MN	354	2.3	164.0
Buffalo Ridge Phase 1	MN	73	0.07, 0.26, 2.02	NA
Buffalo Ridge Phase 2	MN	143	1.78, 2.02	NA
Buffalo Ridge Phase 3	MN	138	2.04, 2.32	NA
Foote Creek Rim	WY	69	1.04, 1.34	97.0
Judith Gap	MT	90	13.4	NA
Klondike	OR	16		33.3
Nine Canyon	WA	37	3.21	106.6
Stateline	OR/ WA	454	0.95	53.3
Vansycle	OR	38	0.74	45.0
Wisconsin	WI	31	1.1	246.4

a Multiple values were included if there were results from more than one study.

b RSA — rotor-swept area.

c NA = not applicable (not calculated or appropriate).

Sources: BLM (2005b); Erickson et al. (2002, 2003a,b); Fiedler et al (2007); Johnson et al. (2003a); Strickland et al. (2001a,b); TRC (2008); Young et al. (2003a,b).

4.10 Cumulative Impacts on Fish

Cumulative impacts that adversely affect water resources, as discussed in Section 4.6, could result in adverse effects to fish and fish habitats in the project area. The potential for impacts to fish and their habitats could be reduced by avoidance of fish-bearing streams during construction and other mitigation measures, as discussed in Section 3.9.3.

4.11 Cumulative Impacts on Special Status Species

Past, present, and reasonably foreseeable future actions described in Section 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on special status species (i.e., federally listed threatened, endangered, and candidate species; BLM sensitive species; and species identified by Montana as vulnerable or imperiled).

Present and past activities throughout the analysis area are very similar, with agriculture as the predominant land use. Impacts to special status species within the analysis area from such activities are similar to the effects described in Sections 4.8 and 4.9 on cumulative impacts on vegetation and wildlife. The special status species that have experienced the greatest impacts are those that are dependent on native grassland habitats, such as black-footed ferrets, ferruginous hawks, peregrine falcons, black-tailed prairie dogs, Baird's sparrow, burrowing owls, and long-billed curlews.

Impacts to special status species within the analysis area from reasonably foreseeable future actions including the Highwood Generating Station, Great Falls Energy Center, wind farms, and new transmission lines would be similar to the effects described in Sections 4.8 and 4.9 on cumulative impacts on vegetation and wildlife. That is, construction could cause the direct injury or death to special status species and reduce available habitat, while operation could impact birds from collisions with wind turbines and wire strikes where the proposed transmission line associated with the Highwood Generating Station would cross the Missouri River.

The cumulative impacts of habitat loss would not likely reduce the viability of special status species populations within the region, as structures would reduce habitat by a relatively small amount and would not likely consume critical habitats, such as large expanses of grasslands or riparian areas. Most of these impacts could be reduced with sound siting practices and other mitigation measures. In addition, some projects would likely need to comply with ESA or state of Montana requirements to protect special status species, which would reduce the potential for adverse cumulative impacts.

4.12 Cumulative Impacts on Air Quality

Past, present, and reasonably foreseeable future actions identified in Section 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on air quality.

Past and present actions with potential air quality impacts include: petroleum refining, crude oil pump and natural gas compressor stations, petroleum product terminals, coal-fired electrical generating plants, concrete mix plants, asphalt mix plants, crematoriums, gravel crushers and associated processing equipment, fugitive dust and smoke from farming and field and forest burning, and dust from gravel roads or during construction. For emission sources such as construction activities, burning, and road dust, the effects are temporary.

Air quality in the area would be affected by the reasonably foreseeable future construction and operation of projects such as the coal-fired Highwood Generating Station and the natural gas-fired Great Falls Energy Center. Other than during construction or maintenance activities, wind farms would not be expected to have air quality impacts. Impacts of construction for transmission line upgrades and wind farms would be similar to impacts of the proposed action. Cumulative impacts would not be expected, however, unless different nearby projects are being built at the same time.

The EIS for the Highwood Generating Station included an analysis of the combined air quality impacts from operation of the proposed Highwood Generating Station and other emission sources in the region (including background concentrations plus emissions from a petroleum refinery, ethanol plant, malting plant, and other sources). Modeling results indicated that all ambient air pollutant concentrations would continue to be well below applicable state and Federal ambient air quality standards (USDA Rural Utilities Service and DEQ 2007). Regulation of operational air emissions under the Clean Air Act and related state regulations through permits issued by DEQ helps to minimize air quality impacts. Furthermore, because of differences in timing, few impacts would be cumulative with air quality impacts of the proposed Project.

Greenhouse Gas Emissions

Many human activities emit carbon dioxide (CO_2) and other "greenhouse" gases, such as methane and nitrous oxide, contributing to increasing concentrations of these gases in the atmosphere. Emissions of CO_2 from fossil fuel combustion are a major contributor of greenhouse gases, totaling 29 billion tons per year globally during the period 2000 to 2005 (IPCC 2007).

Past and present activities in the study area contribute greenhouse gases to the atmosphere. The Montana Climate Change Advisory Committee has estimated that greenhouse gases with global warming potential equivalent to 41 million tons of CO_2 were emitted in Montana in 2005 (Montana Climate Change Advisory Committee 2007). Fossil fuel consumption accounted for 62 percent of Montana greenhouse gas emissions, agriculture accounted for 21 percent, and production of fossil fuels accounted for 14 percent.

As discussed in Section 3.11, the proposed Project would emit very small amounts of greenhouse gases, principally from vehicle and equipment operation during transmission line construction. However, generation of electricity by potential wind farms with contracted capacity on the proposed MATL transmission line could help to reduce emissions of greenhouse gases by avoiding the need to generate equal amounts of electricity from fossil fuels. Conversely, two of the other reasonably foreseeable actions identified in the region would be contributors to greenhouse gas emissions. Operation of the coal-fired power plant at the Highwood Generating Station would release an estimated 2,380,000 tons/year of CO_2 plus methane and nitrous oxide with global warming potential equivalent to 669,000 tons/year of CO_2 (USDA Rural Development and Montana Department of Environmental Quality 2007), adding up to about 7 percent of Montana's total release of greenhouse gases in 2005. Detailed estimates are not available for the Great Falls Energy Center proposal; however, based on its generating capacity, the gas-fueled generator at that facility also would add to cumulative greenhouse gas emissions from the region by emitting over 1 million tons per year of CO_2.

4.13 Cumulative Noise Impacts

Past, present, and reasonably foreseeable future actions identified in Section 4.1.2 and 4.1.3 were reviewed for potential cumulative noise impacts.

Reasonably foreseeable future actions could result in cumulative noise effects from construction if construction of projects such as wind farms and the Highwood Generating Station occurred simultaneously with construction of the proposed Project. Cumulative impacts from wind turbine and transmission line noise during operation would depend on proximity to residences.

Construction would generally be during the day, when noise is tolerated better because of the masking effect of background noise. Nighttime noise levels probably would drop to the background levels of the project area. Noise levels for typical construction equipment that would likely be used are about in the 80 to 90 dB(A) range at a distance of 50 feet, as shown in Section 3.12.3. Blasting may be required for installation of wind

turbine foundations. If blasting is needed, it is anticipated that most foundations would require one to two blasts.

Transformers and switchgears from substations, corona noise from transmission lines, noise from generation facilities, and vehicular traffic noise are sources that would contribute cumulative effects in the MATL project study area. Wind blowing through power lines may also cause noise. Operating wind turbines produce mechanical and aerodynamic noise. The highest sound levels from wind turbines typically occur in frequency ranges that are inaudible to humans because they are below the threshold of human hearing. However, under certain conditions, turbines can produce audible noise loud enough that nearby humans would experience it as a doubling of background noise (Rogers et al. 2006). The level and character of noise produced varies depending on turbine design. Sound levels decline significantly with increasing distance from the source, and noise levels would depend on the observer's location.

4.14 Cumulative Socioeconomic and Environmental Justice Impacts

Socioeconomic conditions in the region would be affected by projects that contribute to the economy, increase employment (temporarily or permanently), increase the demand for public services, or change tax revenue. A review indicated that reasonably foreseeable future actions that could produce these types of effects include construction and operation of a potential MATL transmission line, wind farms, and other energy generation facilities. Therefore, these activities have been included in the cumulative effects analysis for socioeconomics and environmental justice.

The Highwood Generating Station would contribute economic activity to the local and regional area. Plant operation would employ approximately 65 permanent workers (USDA Rural Utilities Service and DEQ 2007). Additionally, there would be increases in total purchases of goods and services, and an increase in the tax base.

Case studies of three wind generation projects elsewhere in the nation indicate that economic benefits may vary widely from project to project (Northwest Economic Associates 2003). For instance, the construction phase of a wind generation project may generate up to 100 jobs, while the operation and maintenance phase may provide between 6 and 31 permanent jobs and between $103,000 and nearly $1 million in additional annual personal income. Wind projects also provide additional landowner revenue in the form of lease payments. Assuming that these types of projects cause little or no increase in government or school budgets, tax payments made by project owners may have the additional benefit of reducing the local tax burden for tax payers (Northwest Economic Associates 2003).

Economic effects of wind generation were estimated for several different levels of wind generation activity. For this cumulative impacts assessment, it is assumed that 600 to 800 MW of wind generation capacity would eventually be built to use transmission capacity of the proposed MATL transmission line. Additionally, to be conservative, the estimated economic effects from 600 MW of wind power are cut in half (which would be the same as the economic activity from 300 MW of wind power) to provide a lower bound number for the economic activity caused by future wind farms in the study area. Finally, because another 500 MW of wind power are in queues for interconnection to transmission lines operated by NorthWestern and WAPA, 1,300 MW of wind generation is treated as an upper bound (800 MW plus 500 MW).

Flowers and Tegen (NREL 2007) used a Jobs and Economic Development Impacts analysis to estimate economic impacts that may occur in the study area as a result of 600 MW of wind farms. They assumed that the 600 MW would be made up of six different projects of about 100 to 120 MW each.

Table 4.14-1 summarizes the economic effects of 300 MW, 600 MW, 800 MW and 1,300 MW of new wind generation based on the Flowers and Tegen study. The results from their study are used to proportionally estimate the economic impact of 300, 800, and 1,300 MW of wind power.

TABLE 4.14-1
SUMMARY OF ESTIMATED ECONOMIC EFFECTS OF DIFFERENT LEVELS OF WIND GENERATION IN THE STUDY AREA

Amount of Wind Generation	Construction Jobs (Short Term)	Permanent Jobs over Lifetime of Wind Farms	Construction Earnings to Montana Workers	Annual Earnings from Wind Farm Operation	Annual County Revenue ($ Millions)	Payments to Local Land-Owners ($ Millions)
300 MW	530	25-30	$20,000,000	$2,300,000	2.3 to 3.0	1.0
600 MW	1,060	50-60	$40,000,000	$4,500,000	5.5 to 6.0	2.0
800 MW	1,400	Up to 80	$53,000,000	$6,000,000	Up to 8.0	2.7
1,300 MW	2,300	Up to 130	$87,000,000	$9,750,000	Up to 13.0	4.4

Note: 1,300 MW would impose larger costs on the local area in terms of demand for services, change in the character of the area, and change in land use.

Assuming a 1-2 year construction period, Montanans would earn $20-$53 million total for the construction of 300 to 800 MW of wind power. Again, the 600 MW numbers taken directly from the NREL study are cut in half to arrive at the conservative lower numbers in these economic ranges.

Over 20 years of operation of this wind energy development, and excluding the 1,300 MW scenario, Montanans would earn approximately $2.3-$6.0 million annually from plant operations and maintenance expenditures on all projects. The wind projects would generate another $2.3-$8.0 million per year in county revenue from property taxes along with another $1.0-$2.7 million per year in payments to local landowners who have turbines on their land (or about $5,000 per turbine), bringing the annual operational total economic benefit from wind farms in the area to about $6-$16 million in Montana. Total property taxes paid by wind farm owners would be about $9,000 per MW per year.

The wind developments would provide jobs to both in-state and out-of-state construction workers, as well as jobs related to local purchases of goods and services (such as cement suppliers, rebar suppliers, etc.). The construction phase would support about 530 to 1,400 direct jobs for Montanans during a 1- to 2-year period, with additional jobs going to out-of-state workers.

The potential for wind energy development projects to decrease residential property values has often been a concern in the vicinity of locations selected for wind power. Although wind farms could lower property values, a review of three studies that examined potential property value impacts of wind power facilities suggests that there would not be any measurable negative impacts (ECONorthwest 2002, Sterzinger et al. 2003, and Poletti and Associates 2007). However, these studies did not exclusively cover rural and agricultural lands. Thus, it is possible that wind farms could have an adverse effect on farm land values.

Additional socioeconomic impacts resulting from new energy generation projects enabled by the existence of the proposed MATL line would be similar to those described in Section 3.13.3 for the proposed MATL line. For example, each new project would have beneficial impacts to local economies due to the presence of construction and operation workers moving to the region and each project's potential utilization of local labor pools. These benefits would increase local employment opportunities and increase local economic transactions as these workers and their families draw upon service and commodity providers. Each new project would also create new facilities subject to state and local taxation, thus further increasing each county's tax revenue. Benefits may also be realized to the rate payer due to increased competition and new energy supplies that may become available as new wind farms come on-line. However, each new generation project would also require land commitments that could remove a small amount of land from production. The lease payments for wind sites are

considered to be higher than the value of the land removed from crop and cattle production. Thus, wind farms also would provide a new revenue stream to landowners.

Overall, additional development of wind energy generation projects and transmission capability would add employment to the area, which could increase demand for public services (schools, fire, police, etc.), add tax revenue, and increase need for goods locally and regionally. There may be a demand for additional housing associated with the increased employment, but it is anticipated that the existing housing supply could accommodate the additional workers and their families. Some local residents may be against wind farms, and thus experience costs such as stress and local divisions on where to locate wind turbines.

Cumulative Impacts on Environmental Justice

As discussed in Section 3.13.3.4, the proposed Project would not contribute to impacts that would cause a disproportionately high and adverse impact on minority or low-income populations compared to populations in the surrounding communities, the state of Montana, or the United States. Future activities by other entities could make such a contribution depending on the nature, location and size of the activities, but construction and operation of the proposed MATL transmission line would not make a significant contribution to such cumulative impacts.

4.15 Cumulative Impacts on Paleontological and Cultural Resources

Past, present, and reasonably foreseeable future actions identified in Sections 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on paleontological and cultural resources. Paleontological and cultural resources in the area would be affected by projects that connect to the MATL transmission line (including wind farms), enter the Great Fall 230-kV Switchyard (new transmission lines and upgrades), and other development actions that cause additional ground disturbance. Therefore, these activities have been included in the cumulative effects analysis for paleontological and cultural resources.

The review indicated that upgrading the MATL transmission line would not contribute cumulative effects on paleontological and cultural resources.

Paleontological Resources

Past and present actions including historic settlements, farming, roads, railroads, canals, transmission lines, telephone and fiber optic lines, and urban-related development have

contributed to cumulative impacts to paleontological resources throughout all environmental settings in the area of the proposed MATL line.

Paleontological resources are generally identified on a project-specific basis. If there is a strong potential for fossil remains to be present in a project area, a survey could be conducted. The following describes the potential cumulative impacts to paleontological resources if they are present at a project site (e.g., a wind farm).

Impacts to paleontological resources could potentially occur from ground-disturbing activities and unauthorized collection of fossils during site monitoring, testing, construction, and operation. The level of impacts would be proportional to the scale of the project. If clearing, grading, excavation, and road construction are very limited, the impacts would also be limited. If more extensive excavation or road construction is needed during construction, more extensive impacts are possible. Impacts during operation would normally be less than those during construction.

Erosion caused by traffic and ground clearing could potentially affect fossils. Fossils could also be affected in small localized areas (e.g., in borings for geotechnical surveys, where guy wires are installed). Finally, the collection of fossils would be another possible impact. Although many of the activities (e.g., during the monitoring and testing phases) are characterized as temporary actions, paleontological resources are nonrenewable, and once impacted (i.e., removed or damaged) can not normally be recovered or recreated in the appropriate context for scientific analysis.

Cultural Resources and Traditional Cultural Properties

An unknown number of prehistoric cultural resources or traditional cultural properties important to area tribes have already been destroyed in the study area by past and present actions including historic settlement, farming, roads, railroads, canals, transmission lines, and telephone and fiber optic lines. While the construction of the MATL project could be designed to avoid impacts to prehistoric and historic properties, impacts from reasonably foreseeable non-linear projects, such as the Highwood Generating Station and the Great Falls Energy Center, may be more difficult to avoid.

Field review of portions of the MATL Project study area for traditional cultural properties indicates a concern for further impacts to a tipi ring site (24PN24), which is considered to be a traditional cultural property by members of the Blackfeet Tribe (Section 3.14.3). The property is located along a segment of the proposed Project that is common to both Alternatives 2 and 3. The site is currently crossed by two pipelines and a transmission line. Therefore, construction of the MATL Project across the property would add to past impacts.

The construction phase of reasonably foreseeable future actions (e.g., additional transmission lines, irrigation, energy generation facilities) could uncover or destroy cultural resources. If the resources are uncovered but not destroyed, the discoveries could be beneficial to professional archaeologists. Otherwise, Federal and state legislation are designed to minimize the potential for impacts to the extent possible when there is Federal or state involvement in a proposed project. To minimize adverse effects, cultural resources should be fully evaluated for NRHP eligibility prior to construction. In addition, an unanticipated discoveries plan for cultural resources should be prepared prior to construction.

4.16 Cumulative Visual Resource Impacts

Past, present, and reasonably foreseeable future actions identified in Section 4.1.2 and 4.1.3 were reviewed for potential cumulative impacts on visual quality. Visual quality in the area would be affected by projects that connect to the proposed MATL transmission line (including wind farms), enter the Great Falls 230-kV Switchyard (e.g., new transmission lines and upgrades), or are visible from the alignment. Public comment had identified a public concern regarding the impacts on visual quality from wind farm development between Great Falls and the Canadian border. These activities have been included in the cumulative effects analysis for visual impacts.

All action alternatives, when combined with past and present actions and reasonably foreseeable future actions (e.g., rebuilding the WAPA Havre to Rainbow transmission line) would increase the developed character of the regional landscape for the long term. In particular, the Highwood Generating Station would result in major adverse aesthetic impacts and contribute to cumulative impacts to the Great Falls Portage National Historic Landmark (USDA Rural Utilities Service and DEQ 2007). Construction of other new generation projects, such as the Great Falls Energy Center north of Great Falls, would contribute to a more developed and industrial character in the area. The proposed center's 92-foot tall stack and 300-foot long building housing the gas turbines would be visible in foreground views from Highway 87.

During construction of reasonably foreseeable future actions, road development (i.e., new roads or expansion of existing roads) may introduce strong visual contrasts in the landscape. Small-vehicle traffic for worker access and large-equipment (e.g., trucks, graders, excavators, and cranes) traffic for road construction, site preparation, and construction would be conspicuous and frequent. Both would produce visible activity and dust in dry soils. If these roads are not removed after construction is complete, they would continue to contribute to the cumulative impact on visual resources.

Ground disturbance would result in visual impacts, including contrasts of color, form, texture, and line. Excavating, trenching, grading and surfacing roads and clearing, leveling, and stockpiling soil and spoils would create dust, expose slope faces, and damage vegetation.



Figure 4.16-1. Two 1.5 MW turbines with passing crane truck and Crazy Mountains in the background.

Wind Farms

Wind generation facilities would be highly visible because of the introduction of turbines into typically rural or natural landscapes with few other comparable structures. Wind turbines may have visually incongruous "industrial" associations for some, particularly in a predominantly natural landscape. Visual evidence of wind turbines is difficult to avoid or conceal due to turbine size and exposed location. In addition, the temporary presence during construction of large cranes or a self-erection apparatus to construct wind farms would introduce contrasting elements to the landscape.

Figures 4.16-1 through **4.16-3** show the Judith Gap Energy Center wind farm. This 135-MW facility is located in central Montana between Harlowton and Judith Gap, adjacent to US Highway 191. Photos were taken in June 2007 from viewpoints within the wind farm.

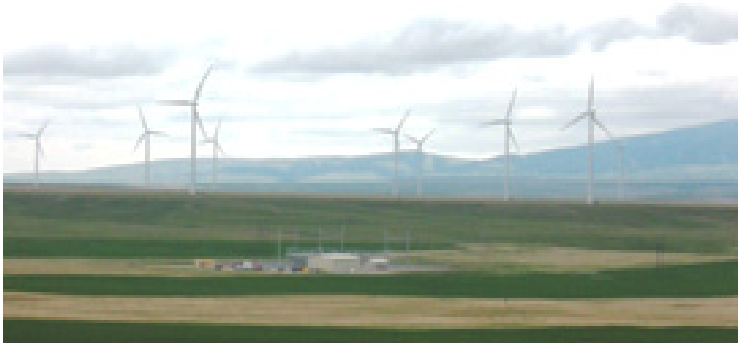


Figure 4.16-3. Judith Gap operations and control facility with foothills of Big Snowy Mountains in the background.

Studies performed in the United Kingdom suggest a large area of visual influence for wind farms. Sinclair (2001)



Figure 4.16-2. Turbines on west side of US Highway 191 with Little Belt Mountains in background.

provides a basis for determining the potential visual impacts and area of study for wind farms. The Sinclair-Thomas matrix based on numerous field observations of operating wind farms in the United Kingdom, identifies bands of visual influence surrounding wind farms. Sinclair suggests that bands or zones of visual influence having dominant to low visual impact can surround a wind farm for up to 15 miles.

For the Valley County Wind Energy Project (Wind Hunter 2004) with 1.5 MW turbines, the Sinclair-Thomas matrix was adapted to determine zones of visual influence that extended 18 miles from the proposed wind farm. Five levels of visual influence were assigned for potential impact levels:

Proximate (0 – 1.5 miles)
High (1.5 – 4.0 miles)
Moderate (4.0 – 10.0 miles)
Low (10.0 – 18.0 miles)
None (18.0+ miles)

This analysis indicates that a potentially high level of visual impact can extend up to 4.0 miles from wind farms with 1.5 MW turbines, with moderate and low impacts at distances up to 18 miles. Zones of visual influence could be expected to extend further for 2.0 or 2.5 MW turbines that are up to 500 feet high. Factors such as location of viewers, proximity, viewer sensitivity, duration of views, degree of project visibility

and contrast, scale of the project in relation to its setting, and presence of valued scenic resources could be used to guide the assessment of potential impacts for any project (National Academy of Sciences 2007).

Daily and seasonal low sunlight conditions striking ridgelines and towers would tend to make turbines more visible and more prominent. Given the typical pale color of turbines, their color contrast with surroundings would likely be the least in winter when snow cover is present. In regions with variable terrain, wind developments along ridgelines would be most visible, particularly when viewed from other similar or lower elevations, owing partly to silhouetting against the sky. Higher viewing points relative to wind farm locations would reduce silhouetting (Burton 1997; EFSEC 2003; Owens 2003; WDFW 2003a). Interposition of turbines between observers and the sun, particularly in the early and late hours of the day and during the winter season when sun angles are low, could produce flickering shadows cast onto the ground and objects by the moving rotors. Shadow flicker could be very noticeable because of its motion and frequency, and may increase with snow cover, but would be a temporary effect and limited to daylight hours.

FAA provides guidelines for the marking and lighting of wind turbine farms (FAA 2007), defined as developments with more than three turbines with heights over 200 feet above ground level. Marking recommendations recognize that not all turbines within an installation need to be lighted. Guidelines specify that it is important to define the periphery of the turbine array, and that within the array no unlighted gap greater than one-half statute mile should be present. Flashing red or white lights may be used to light wind turbines. Lights are placed as high as possible on the turbine nacelle, so as to be visible from 360 degrees.

Reflection of the sun off rotating turbine blades could produce blade glint noticeable at distances of about 6 to 9 miles and may be especially pronounced when aligned with roadways or other viewing corridors. This temporary effect varies with the orientation of the nacelle, angle of the rotor, and location of the observer relative to the sun.

If security and safety lighting were used for support facilities, even if they were downwardly focused, visibility of the site would increase, particularly in the dark nighttime sky typical of rural areas. It would also contribute to sky glow resulting from ambient artificial lighting. Any degree of lighting may produce off-site "light trespass"; it would be most abbreviated if the lighting were limited to the substation and controlled by motion sensors.

Additional construction and installation of monitoring equipment may be required during site operation. Infrequent outages, disassembly, and repair of equipment could occur and produce the appearance of idle or missing rotors, "headless" towers (when nacelles are removed), and lowered towers. Negative visual perceptions of "lost benefits" (e.g., loss of wind power) and "bone yards" (for storage) may result.

For ground viewers of aeronautical safety markings white lights could be less obtrusive in daylight. Red lights would likely be conspicuous at great distances against dark skies (Gipe 2002). Although aeronautical safety beacons would concentrate light in the horizontal plane, they would increase visibility of the turbines, particularly in dark nighttime settings typical of rural areas. Because of their intermittent operations, beacons would likely not contribute to sky glow from artificial lighting. Their emission of light to off-site areas could, however, be considerable.

If decommissioning occurred, impacts on visual resources would be similar to those encountered during construction. Restoring a decommissioned site to pre-project conditions would entail recontouring, grading, scarifying, seeding, planting, and, perhaps, stabilizing disturbed surfaces. Newly disturbed soils would create a visual contrast that would persist at least several seasons before revegetation would begin to disguise past activity. Restoration to pre-project conditions may take much longer. Invasive species may colonize newly and recently reclaimed areas. Non-native plants would likely produce contrasts of color, form, texture, and line.

4.17 Unavoidable Adverse Impacts

This section summarizes the adverse impacts that cannot be avoided that are expected to occur with implementation of the proposed Project.

Construction and operation activities could have adverse impacts on wetland resources from the alteration of surface water drainage patterns, disturbances and trampling of vegetation during construction, and from an increase in sedimentation to localized wetland areas from disturbances on adjacent properties. Transmission line structures would not be placed in wetland areas, so no long-term impacts are expected for wetland resources. Native vegetation would be unavoidably disturbed, and weed infestations may occur. Travel routes could be unavoidably obstructed during construction. Long-term impacts to land use include loss of production from farmland, increased risk to aircraft, and interference with farming activities. An increase in avian mortality would be unavoidable and long term. There would be unavoidable major adverse impacts to the visual quality of the landscape where the transmission line crosses the Teton and Marias rivers or passes within 1/2 mile of residences or major highways.

4.18 Irreversible or Irretrievable Commitments of Resources

If concrete footings are used, the concrete would be left and irreversibly committed. Fuel used during construction and decommissioning would be irreversibly committed to the project. The wood used in structures would not be available for future transmission projects and would be irreversibly committed to the project. Energy lost

during transmission line operation (line losses) would be irretrievably committed to the project.

Paleontological and cultural resources, including traditional cultural properties, are nonrenewable resources. The MATL project would increase access to the areas where these resources may be located. This increased access could lead to intentional damage from looting and vandalism, including unauthorized relic collecting, theft, and defacement, and result in the loss of information and destruction of the resource. Impacts to these resources would constitute an irreversible commitment of resources.

4.19 Relationship between Short-Term Uses and Long-Term Productivity

As applied to the proposed Project, short-term uses of man's environment are characterized by existing land use of the Project study area as modified by the proposed Project, together with all activities that such land use facilitates. Maintenance and enhancement of long-term productivity involves sustaining the interrelationships of each resource in a condition sufficient to support ecological, social, and economic health.

All action alternatives would manage resources within regulatory standards for air quality, water quality, cultural resource preservation, and wildlife management. Impacts from any of the action alternatives on farming would not adversely affect long-term productivity of the resource. Overall impacts on socioeconomic resources would be beneficial under all action alternatives.

Long-term impacts on cultural and paleontological resources would result from increased access to areas that were formerly not accessible. This access can lead to intentional damage to paleontological and cultural resources from unauthorized collecting, theft, and defacement, and result in the loss of information and destruction of the resource. In addition, the presence of the proposed MATL transmission line would allow development of wind energy projects that could contribute to cumulative impacts to paleontological or cultural resources. The location of the MATL Project on or near traditional cultural properties could have long-term effects on traditional cultural practices. In addition, the transmission line structures would be highly visible for the life of the project.

4.20 Regulatory Restrictions Analysis

MEPA requires agencies to evaluate any regulatory restrictions and incremental costs that could be imposed on the use of private property in connection with a proposed action.

Alternatives 3 and 4, Local Routing Options, and mitigation measures are designed to protect environmental, cultural, visual, and social resources, although they add to the cost of the Project. Alternatives and mitigation measures that are required by Federal or state laws and regulations to meet minimum environmental standards do not need to be evaluated for extra costs to the proponent.

Based on calculations done in 2007, bond requirements and other mitigation measures that might be imposed by DEQ would add from 1.3 to 1.9 percent to the basic construction cost of Alternative 2 (**Table 4.20-1**). Alternative 3 would be less expensive to build than Alternative 2. Alternative 4, including bond, would cost 12.5 percent more than the basic construction cost of Alternative 2 or 11.1 percent more than the cost of Alternative 2 including bond (**Table 4.20-1**).

Mitigation measures whose costs can be estimated are precision mapping of unstable soils, archaeologist observation of construction, use of conductors with dulled, non-reflective surfaces, wetlands delineation, and bonding for reclamation and revegetation. Monopole structures in addition to the 56 miles that MATL has committed to use for diagonal crossings of cultivated cropland might also be required in some areas.

The costs of other measures, such as damage payments, are not readily quantifiable but would add to the total cost of the proposed Project.

MATL has already negotiated easements across portions of the proposed Project alignment. The cost to MATL is unknown. If MATL has already paid for right-of-way access to lands that may be crossed by the Alternative 2 alignment and that alignment is not permitted, MATL may lose the money already spent. Additionally, if landowners along Alternative 2 were expecting compensation for the costs of farming around structures and that alignment is not permitted, the landowners would not receive their expected compensation.

TABLE 4.20-1
REGULATORY RESTRICTIONS ANALYSIS

	Alternative 2		Alternative 3	Alternative 4
	With Bond and 56 Miles of Monopoles Only	With Bond, 56 Miles of Monopoles, and Additional Mitigation Measures	With Bond, No Monopoles, and Additional Mitigation Measures	With Bond, 88.9 Miles of Monopoles, and Additional Mitigation Measures
Length (miles)	129.9 (56 miles monopoles, 73.9 miles H-frames)	129.9 (56 miles monopoles, 73.9 miles H-frames)	121.6 (all H-frames)	139.9 (88.9 miles monopoles, 51 miles H-frames)
Estimated Construction cost[a]	$44,036,832	$44,036,832	$39,287,987	$48,430,930
Precision mapping of unstable soils[b]	0	$11,000 (11 miles)	$6,000 (6 miles)	$24,000 (24 miles)
Professional archaeologist to observe construction[c]	0	$160,000 (35 sections)	$160,000 (37 sections)	$160,000 (35 sections)
Delineate wetlands on alignment through Teton County[d]	0	$11,500 (23 miles)	$13,000 (26 miles)	$13,000 (26 miles)
Use of conductors with dulled, non-reflective surfaces[e]	0	$62,000 (129.9 miles)	$58,000 (121.6 miles)	$67,000 (139.9 miles)
Estimated bond	$500,000	$500,000	$420,000	$615,000
Estimated Total cost	$44,536,832	$44,769,832	$39,931,987	$49,296,930
Percent difference from basic construction cost of Alternative 2	+1.1	+1.7	-9.3	+11.9
Percent difference from total cost of Alternative 2	0	+0.5	-10.3	+10.7

Notes:

a Transmission line costs are approximate and based on $323,092 per mile for H-frame structures and $359,429 per mile for monopole (U.S. $, August 8, 2008 exchange rate)

b $1,000 per mile of alignment, 500 feet wide.

c $1,000 per day each for two full-time archeologists for 4 months.

d $30 per 1,000 feet per conductor additional cost for non-specular conductor (BPA 2007).

4.21 Intentional Destructive Acts

Intentional destructive acts, such as sabotage, terrorism, vandalism, and theft, sometimes occur at power utility facilities. These acts include shooting at insulators, power lines, transmission towers, or substation equipment; vandalism; and theft of equipment, supplies, tools, or materials. Vandalism and thefts are most common. The impacts from vandalism and theft, though expensive, do not generally cause a disruption of service to the area. Stealing equipment from electrical substations can, however, be extremely dangerous. Some would-be thieves have been electrocuted while attempting to steal equipment from energized facilities.

Utilities use physical deterrents such as fencing, cameras, warning signs, rewards, and other measures to help prevent theft, vandalism, and unauthorized access. In addition, some utilities offer rewards for information that leads to the arrest and conviction of individuals committing crimes against their facilities.

Depending on the size and voltage of the line, destroying towers or other equipment could disrupt electrical service. The effects of these acts would vary depending on the particular act and configuration of the transmission system. While in some situations these acts would have no noticeable effect on electrical service, in other situations service could be disrupted in the local area or, in the case of damage to equipment that is part of the main transmission system, a much larger area could be left without power.

The MATL transmission line would be made up of transmission line support structures, electric conductors, and electric substations. The support structures would be emplaced in the ground and would be difficult to dislodge. The overhead transmission conductors and the structures that carry them would be mostly on unfenced utility rights of way.

Given the characteristics of the proposed MATL transmission line project and its rural location, it is unlikely that intentional destructive acts would occur. Even if such an act did occur, it would not have a major impact on the transmission system or electrical service, since the grid is designed to withstand the loss of key elements and still provide uninterrupted service to customers. Service is provided by the network, not by individual transmission lines. Any impacts from sabotage or terrorist acts likely could be quickly isolated. In addition, security measures are included to prevent such acts and to allow for a quick response.

5.0 Consultation and Coordination

MFSA requires that a project applicant consult with government agencies to identify their concerns over the facility's possible locations or effects on the environment, to discuss mitigation measures suggested by the agencies, and to explain how the agency concerns were incorporated into identifying the proposed Project and alternative locations. MEPA and NEPA require DEQ and DOE to consult with local, Federal, and state agencies about the proposed Project during the project scoping.

DEQ and DOE have consulted with the applicant, other Federal and state agencies, local governments, and with individuals and non-government stakeholders. The consultation process took place during scoping and follow-up discussions. Interested individuals and organizations, affected Federal, state, and local agencies, as well as affected Indian Tribes were invited to submit comments to DEQ and DOE. MFSA requires FWP, DNRC, MDT, the Department of Revenue, and the Public Service Commission to report their recommendations on this project to DEQ. Results of this reporting would be incorporated into the final EIS.

Initial Consultation and Coordination

The MFSA consultation process began on May 9, 2005, when MATL representatives met with DEQ personnel to introduce the proposed Project and discuss issues or concerns during initial stages of the MFSA application process. MATL conducted open house sessions in Conrad and Cut Bank, Montana, on June 29 and 30, 2005, to provide the public an opportunity to meet representatives of the MATL project team and obtain information on the scope of the project. These open houses provided a venue for the public to voice and document their concerns and issues to MATL.

DEQ hosted an interagency project meeting on August 26, 2005, in Helena, Montana, to familiarize participating agency personnel with the proposed Project, to field agency questions, and to formalize agency roles and responsibilities. Attendees for the August 26, 2005, meeting included personnel from the following agencies:

- DEQ
- U.S. Department of Energy (DOE; via teleconference)
- Montana Fish, Wildlife and Parks (FWP)
- Montana Department of Transportation (MDT)
- Montana Department of Commerce
- DNRC

MATL submitted a MFSA application to DEQ on December 1, 2005, and submitted additional information and/or amended the application on January 11, January 24, March 16, March 30, June 9, July 31, August 11, November 30, and December 15, 2006, and several others in 2007 and 2008.

Public Scoping

Three public scoping meetings were held in Cut Bank, Conrad, and Great Falls in early December 2005. The scoping process is discussed in Section 1.5. A follow-up meeting was held in Cut Bank on June 26, 2006. The December 2005 and June 2006 public meetings were advertised in *The Valierian, The Cut Bank Pioneer Press, The Glacier Reporter*, and *The Shelby Promoter* for a 3-week period prior to meetings. Based on the additional public comments and to address deficiencies in the original December 1, 2005, application, MATL revised its MFSA application and provided additional information as discussed above.

DOE also published a Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings in the *Federal Register* on November 18, 2005 (70 FR 69962). A copy of this notice was transmitted by mail to landowners in the study area.

Formal and Informal Consultation and Coordination

In addition to the general meetings and telephone contacts, DEQ hosted a meeting in Great Falls on October 6, 2006, to share information about multiple projects that may involve construction in and around the NWE Great Falls 230-kV Switchyard. Meeting attendees for the October 6, 2006, Great Falls meeting included personnel from the following agencies and organizations:

- DEQ
- MATL
- NorthWestern Energy Corporation
- Western Area Power Administration (WAPA)
- PPL Montana
- Montana Fish, Wildlife and Parks (FWP)
- Sheffels Farms, Inc.
- Joe Stanek Farms (area landowner)
- Tetra Tech

Concerned citizens have submitted written comments and suggestions and have called DEQ throughout the process. The distribution list for this EIS is in Chapter 9. The list of commenters on the Draft EIS is in Volume 2.

DOE sent letters to the Blackfeet Nation and Confederated Salish and Kootenai Tribes soliciting information about historic properties in or near the Project area and providing them with an opportunity to identify their concerns about such properties, including potential mitigation measures (Appendix P).

DEQ, DOE, and MATL have sought consultation from other interested individuals, SHPO, USFWS, and non-government organizations, as well as affected Indian Tribes. Consultation with SHPO and USFWS have been completed.

MATL also sought consultation with the Blackfeet Tribal Council in Browning. On September 12, 2005, MATL and representatives from their project team met with Blackfeet Tribal Council members in Browning to discuss potential effects on tribal economic, social, and traditional lands interests. Blackfeet Tribal Council members, staff, and interested parties in attendance included: Owna Scott-Big Bull, William Big Bull, John Murray, Teri Lawrence, Wendy Running Crane, Brian Crawford, Terry Tatsey, Douglas Quade, Curly Bear Wagner, Joseph Weatherwax, Kenneth Augare, Gerald Wagner, Pat Schildt, and Earl Old Person. Following introductions and a brief project overview provided by MATL personnel, Blackfeet Councilmen, staff, and tribal members raised several substantive issues that were addressed or recorded for follow-up. See Section 3.14 for discussion of cultural resources.

Public Hearings on the March 2007 Document

In March 2007, the DEQ and DOE published a draft document that was both the Federal EA and the State of Montana Draft EIS (March 2007 document). The document was distributed for public comment, and three public hearings were conducted to receive comments on the document during a 55-day public comment period. The public hearings were held at:

- Conrad on Tuesday, March 27, 2007
- Cut Bank on Wednesday, March 28, 2007
- Great Falls on Thursday, March 29, 2007

Over 600 comments were received on the March 2007 Document. Based on comments relating to land use and potential effects on farming, DOE determined an EIS to be the proper NEPA compliance document. Accordingly, on June 7, 2007, DOE published in the *Federal Register* (72 FR 31569) a Notice of Intent to Prepare an EIS and to Conduct Scoping. The Draft EIS was published in February 2008 and included the responses to the comments received on the March 2007 document in Volume 2.

Public Hearings on the Draft EIS

Following publication and notice of availability of the Draft EIS in the *Federal Register* on February 15, 2008 (73 FR 8869), the agencies held a 45-day comment period that ended on March 31, 2008. During the comment period, the agencies hosted three public hearings allowing the public to submit oral and written comments. The agencies held public hearings in:

- Great Falls on Tuesday, March 11, 2008
- Cut Bank on Wednesday, March 12, 2008
- Conrad on Thursday, March 13, 2008.

The agencies also accepted written comments from the public throughout the comment period.

6.0 List of Preparers

Department of Environmental Quality

Name	Title	Education	Years of Experience
Tom Ring	Project Coordinator	B.S., Fish and Wildlife Management B.S., Earth Science	26
Greg Hallsten	Project Coordinator	B.S., MS Range Management B.S., Wildlife Biology	18
Warren McCullough	EIS Reviewer	B.A., Anthropology M.S. Geology	13
Nancy Johnson	Visuals EIS Reviewer	B.S., Education M.S., Secondary Education M.L.A, Landscape Architecture	25
Jeff Blend	Socioeconomics Transmission System Analysis	B.S., Economics M.S., Economics PhD., Agricultural Economics	10
Craig Jones	Land Use/EIS Reviewer	B.A., Political Science	3

Tetra Tech

Cameo Flood	Assistant Project Manager Land Use, Farming and Ranching	B.S., Forestry	21
J. Edward Surbrugg	EIS Project Manager Vegetation/Wetlands	B.S., Range Ecology M.S., Land Rehabilitation Ph.D., Soil Science	26
Jim Dushin	Visual Simulations	A.AS., Forestry B.S., Wildlife Biology	28
Chris Reynolds	Geology and Soils	B. S., Geology M.S. Geochemistry/Hydrogeology	18
Ed Madej	Database/GIS	B.S., Biology and Oceanography	25
Stacy Pease	Wildlife/Fisheries	M.S. Watershed Management B.S. Wildlife and Fisheries Science	8
Gary Sturm, P.E.	Engineering	B.S., Engineering Physics M.S., Civil Engineering	30
Alicia Stickney	Editorial Review, Community Resources	B.A., English M.S., Geology	18
Alice Stanley	MEPA/NEPA Specialist Hydrology	B.S., Geology M.S., Geology	24
Alane Dallas	Word Processing/ Admin Record		15
Linda Daehn	Public Relations	B.S., Journalism	17
Dan Buffalo	Groundwater	M.S., Water Resources Management B.S., Biology	26
Chris Martin	Surface Water/Visuals	M.S. Coursework, Mathematics Teacher Cert/B.A. Equiv., Mathematics B.S., Watershed Science – Hydrology	26

Tetra Tech (Cont.)

Earl Griffith	Utilities and Transportation	B.S., Earth Science (Geology) M.S., Earth Science (Geology)	32
H. Mark Blauer	Human Health and Environment	PhD., Nuclear Chemistry M.S., Earth and Space Sciences B.S., Chemistry	34
Heidi Raymer	Electromagnetic Effects	B.S., Nursing B.S., Environmental Occupational Safety and Health	5
Jay Rose	Presidential Permit	B.S., Ocean Engineering J.D.	22
Amy Sivers	Hazardous Materials	M.S., Geosciences B.A., Geography	6
C. Ray Windmueller	Air	B.S., Petroleum Engineering	18
Nancy Linscott	Socioeconomics and Environmental Justice	B.S., Earth Science (Geology) M.S., Environmental Policy and Management	18
Keith Cron	Noise	M.S., Industrial Hygiene B.S., Science and Engineering	7
Mike DaSilva	NEPA/MEPA Specialist	B.A., Biology M.S., Biology	25

HRA

Weber Greiser	Cultural Resources	B.S., Anthropology M.A., Anthropology	20

Glossary

Affected Environment: Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action.

Air Pollution: Dust, fumes, smoke, other particulate matter, vapor, gas, odorous substances or any combination of these.

Alignment: The facility location.

Alluvial: Composed of alluvium or deposited by a stream or running water.

Alluvium: A general term for all deposits resulting from the operations of modern rivers and creeks, including the sediments laid down in riverbeds, floodplains, and fans at the foot of mountain slopes.

Ambient Air Quality Standard: An established concentration, exposure time, and frequency of occurrence of air contaminant(s) in the ambient air that shall not be exceeded.

Ambient Level: The existing level of air pollutants, noise, or other environmental factors used to describe background conditions (i.e., conditions before a project is implemented).

Analysis area: The area, defined for each resource, which the impact analysis addresses. The analysis boundary is different for each resource. For instance, the impact to soils or vegetation of a transmission pole may be confined to the structure footprint. The impact to land use may be the entire field in which the structure is placed.

Aquifer: Rock or sediment which is saturated with water and sufficiently permeable to transmit economic quantities of water to wells.

Benthic: of, relating to, or occurring at the bottom of a body of water.

Best Management Practices: A practice or combination of practices that is determined to be the most effective and practicable (including technological, economic, and institutional considerations) means of controlling point and nonpoint pollutants at levels compatible with environmental quality goals.

Big Game: Those species of large mammals normally managed as a sport hunting resource.

Centerline: See reference centerline.

Class 3 farmland- In accordance with the provisions of 15-7-202, MCA, contiguous parcels of land under one ownership as defined in ARM 42.20.601, 160 acres or larger in size shall be valued as agricultural land, provided that no portion of the ownership meets the criteria for forest land classification and there are no covenants, easements, deed restrictions, or other operations of law that prohibit the land from being used as agricultural, or the land is not used for residential, commercial, or industrial purposes. (42-20-640, MCA)

Class 10 timberland- contiguous land of 15 acres or more in one ownership that is capable of producing timber that can be harvested in commercial quantities (can produce 25 cubic feet or more of stemwood per acre per year in live softwood trees at the culmination of the mean annual increment for fully stocked, natural sands and (2) meets the stocking requirements set forth by an administrative rule. (ARM 42.20.701)) and that is producing timber unless the trees have been removed by man through harvest or by natural disaster. (15-44-102, MCA)

Colluvium: Rock detritus and soil accumulated at the foot of a slope.

Conductor: Wires or lines that carry the electrical current in a transmission line.

Corona: Breakdown of the air, for example, on the surface of a high-voltage conductor, to produce air ions

CRP Lands: Farmlands for which a landowner receives an annual payment and cost-share assistance to establish long-term resource conserving covers. Administered by the U.S. Farm Service Agency.

Cultural Resources: Those fragile and nonrenewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering.

Cumulative effect: Environmental effects that result from the incremental impact of a Proposed Action in addition to other actions (past, present, or future) in the vicinity. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Current: The flow of electricity. A voltage will always try to drive a current. The size current that is driven depends on the resistance of the circuit.

dB(A): Stands for A weighted decibels. This decibel scale is used to approximate the way human hearing responds more to some frequencies than to others.

Dead end: A point on a distribution line where conductors terminate. A "double dead-end" has conductors terminating from two directions. Jumper wires are used to connect these two sets of conductors.

Dead end: (angle greater than 45°): A transmission line structure that would be used where the line turns at an angle greater than 45°. The structure used in this instance would be a 3 pole dead end.

Dead end: (angle less than 1°): A transmission line structure that would be used where the line turns less than 1°. The structure used in this instance would be a 4 pole dead end.

Direct impact: An effect that results solely from the construction or operation of the Proposed Action.

DGPS: Differential Global Positioning System is an enhancement to Global Positioning System that uses a network of fixed ground based reference stations to broadcast the difference between the positions indicated by the satellite systems and the known fixed positions. These stations broadcast the difference between the measured satellite pseudoranges and actual (internally computed) pseudoranges, and receiver stations may correct their pseudoranges by the same amount.

Easement: a general term for a limited right to make use of a property owned by another party.

Electric fields: Produced by voltages, irrespective of how much current is flowing and indeed whether any current is flowing at all. The electric field is the region around a conductor where a force will be experienced by a charge.

Electric Grid: All parts of an electrical system that are directly connected to each other through alternating current transmission lines. The term used in the industry is "Interconnection."

Electric Transmission Grid: The western grid moves power from many different generating plants to customers and their electric loads.

Electromagnetic interference: high frequency electrical noise that can cause radio and television interference.

Emergent Wetland: Any area of a vegetated wetland where non-woody vegetation (e.g. cattail, grasses, sedges) comprises at least 30 percent areal cover.

Eminent Domain: In common law legal systems is the inherent power of the state to seize a citizen's private property, expropriate property, or rights in property, without the owner's consent. The property is taken either for government use or by delegation to third parties who will devote it to "public use." The most common uses of property taken by eminent domain are public utilities, highways, and railroads. Some states require that the government body offer to purchase the property before resorting to the use of eminent domain.

Emission: The release of air contaminants into the ambient air.

Emission Standard: A requirement established under the Federal Clean Air Act which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis.

EMFs: Electric and magnetic fields. Sometimes also defined as electromagnetic fields.

Environmental effect: Any change that an action may cause in the environment, including biological resources, land use, health and socioeconomic conditions, cultural heritage, geology, and paleontology.

Environmental Justice: Evaluation of potential disproportionately high and adverse impacts on low income and/or minority populations that may result from a Proposed Action.

Ephemeral Drainage: A stream or stream segment that flows only briefly in response to local precipitation and has no base flow.

Erosion: Wearing away of soil and rock by weathering and the actions of surface water, wind, and underground water.

Farmland of Statewide Importance: Land that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Criteria for defining and delineating this land are to be determined by the appropriate State agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

Federal Energy Regulatory Commission (FERC): The Federal commission that regulates interstate and wholesale power transactions, including power sales and transmission services, as well as licensing of hydroelectric projects.

Floodplains: Floodplains are the lowlands and relatively flat areas adjoining inland and coastal waters and the flood prone areas of offshore islands. Regulatory floodplain means an area inundated by a 100-year flood as depicted on a Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency. The 100-year flood is the flood event estimated as having a 1.0 percent chance of occurring in any given year.

Fugitive Dust: A particulate emission made airborne by forces of wind, human activity, or both. Unpaved roads, construction sites, and tilled land are examples of areas that originate fugitive dust.

Heavy angle structure: A transmission line structure that would be used where the line turns between 30° and 45°.

Impact zone: The study area in which data are collected during the baseline study in order to make a determination of the impacts from construction, operation, maintenance, or decommissioning of a proposed facility or associated facility at preferred and reasonable alternative locations.

Indirect impact: An effect that is related to but removed from a Proposed Action by an intermediate step or process.

Insulators: a device made of porcelain or polymer that prevents energized conductors from coming in contact with each other. They also prevent conductors from energizing structures or facilities that are not designed to carry electricity. Bushings are a type of insulator.

Intermittent Stream: A stream that flows in a well-defined channel in response to precipitation and is dry for part of the year.

Jurisdictional wetlands: Wetlands protected by the Clean Water Act. They must have a minimum of one positive wetland indicator from each parameter (i.e.,

vegetation, soil, and hydrology). The U.S. Army Corps of Engineers requires a permit to fill or dredge jurisdictional wetlands.

Kilovolt (kV): 1,000 Volts. The Volt is unit for measuring electrical potential, or "pressure."

Kilovolt ampere (kVA): The practical unit of apparent power, which is 1,000 volt-amperes. The volt-amperes of an electric circuit are the mathematical products of the volts and amperes of the client.

Kilowatt (kW): The electric unit of power equal to 1,000 watts.

Kilowatt-Hour (kWh): The basic unit of electric energy equal to one kilowatt of power supplied to or taken from an electric circuit for one hour.

Lacustrine: Of, relating to, formed in, living in, or growing in lakes.

Lek: A traditional courtship display area attended by male sharp-tailed grouse or sage grouse.

Linear facility: An electric transmission line or pipeline covered under Montana's Major Facility Siting Act.

Load: The amount of electric power delivered or required at any specified point or points on a system. Load originates primarily at the power consuming equipment of the customer.

Megawatt (MW): One million watts.

Megawatt-hour (MWh): One thousand kilowatt-hours or one million-watt hours.

Medium angle structure: A transmission line structure that would be used where the line turns between 5° and 30°.

Mesic: Characterized by, relating to, or requiring a moderate amount of moisture.

Milligauss: A unit of measurement for magnetic fields.

Mitigation: An action to avoid, minimize, reduce, eliminate, replace or rectify the impact of a management practice.

Montana Major Facility Siting Act (MFSA): This law governs the siting of most large energy transporting facilities in Montana.

Nacelle: The structure in a wind turbine that houses the rotor shaft, gearbox, and generator.

National Environmental Policy Act of 1969 (NEPA): This act requires Federal agencies to evaluate the environmental effects of Proposed Actions.

Nitrogen Dioxide (NO_2): A reddish brown gas that is a component of smog.

Nitrogen Oxides (NO_x): A group of compounds containing varying proportions of nitrogen and oxygen.

No Action Alternative: The No Action alternative is required by MEPA and regulations implementing NEPA. The No Action alternative provides a baseline for estimating the effects of other alternatives. Where a project activity is being evaluated, the No Action alternative is defined as one where No Action or activity would take place.

Nonattainment: Description of areas of the state not yet in compliance with National Ambient Air Quality Standards.

North American Electric Reliability Council (NERC): NERC consists of eight regional reliability councils: Electric Reliability Council of Texas, Inc. (ERCOT), Florida Reliability Coordinating Council (FRCC), Midwest Reliability Organization (MRO), Northeast Power Coordinating Council (NPCC), Reliability First Corporation (RFC), Southeastern Electric Reliability Corporation (SERC), Southwest Power Pool, Inc. (SPP), and Western electricity Coordinating Council (WECC).

Noxious Weed: Exotic (non-native) species of plants that proliferate and reduce the value of land for agriculture, forestry, livestock, wildlife, or other beneficial uses.

Operational right-of-way: MATL defined the transmission line operational right-of-way as 45 feet wide (22.47 feet to either side of the centerline).

Palustrine: Inland wetland that lacks flowing water and contains less than 0.05 percent ocean-derived salts.

Passerine: Large order of birds which include songbirds of perching habits.

Per capita personal income: According to the U.S. Bureau of Economic Analysis, the average income received per person. This includes income received from all sources such as wages, proprietor's income, rental income, and dividend income.

Personal income (Total): Income received from all sources.

Prime Farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

Raptor: Bird of prey.

Reference centerline: The facility location. DEQ approves a 500-foot-wide facility location (250 feet to either side of a presumed centerline unless there is a compelling reason to enlarge or narrow this width.

Right-of-way: The right to pass over property owned by another. The strip of land over which facilities such as roadways, railroads, pipeline, or power lines are built.

Ruling Span- a calculated weighted average of span lengths between deadend power line towers. Ruling span is used to design transmission lines and then subsequently used in monitoring sag of the lines.

Salmonid: Any of a family (Salmonidae) of elongate bony fishes (as a salmon or trout) that have the last three vertebrae upturned.

Special Status Species: Those species of plants or animals that have a protective status designated by a state or Federal agency because of general or localized population decline.

Substation: an installation which accomplishes one or more of the following:

- voltage changed from one level to another level.
- voltage regulated to compensate for system voltage changes.
- electric transmission and distribution circuits switched into and out of the system.
- electric power flowing in the transmission and distribution circuits measured.
- communication signals are connected to the circuits.

System reliability: the ability of a power system to provide uninterrupted service.

Tertiary: The Tertiary period or system of rocks.

Topsoil: Fertile soil or soil material, usually rich in organic matter, used to top dress disturbed areas. Topsoil is better suited to supporting plants than other materials.

Total Maximum Daily Load (TMDL): The total amount of a pollutant, per day, (including a margin of safety) that a waterbody may receive from any source (point, nonpoint, or natural background) without exceeding the state water quality standards. The term frequently refers to a plan or strategy to return a waterbody to compliance with the water quality standards and therefore fully supporting of its designated uses.

Transmission capacity: the maximum load that a transmission line or network of transmission lines is designed to carry.

Transmission lines: High voltage electric conductors used for bulk movement of large volumes of power across relatively long distances.

Transmission restricted: the existing transmission capability is limiting the flow of electricity into and out of the area, in this case, Montana.

Utility: A regulated entity which exhibits the characteristics of a natural monopoly. For the purposes of electric industry restructuring "utility" refers to the regulated, vertically integrated electric company. "Transmission utility" refers to the regulated owner/operator of the transmission system only. "Distribution utility" refers to the regulated owner/operator of the distribution system which serves retail customers.

Viewshed: The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

Volatile Organic Compound (VOC): Any of several compounds of carbon that participate in atmospheric photochemical reactions, forming secondary pollutants.

Volt: A unit of electrical pressure. It measures the force or push of electricity. Volts represent pressure, correspondent to the pressure of water in a pipe. A volt is the unit of electromotive force or electric pressure analogous to water pressure in pounds per square inch. It is the electromotive force which, if steadily applied to a circuit having a resistance of one ohm, will produce a current one ampere.

Volt-amperes: The volt-amperes of an electric circuit are the mathematical products of the volts and amperes of the client.

Voltage: Measure of the force of moving energy.

Watt: The electric unit of power or rate of doing work. One horsepower is equivalent to approximately 746 watts.

Watt-Hour: One watt of power expended for one hour.

WECC: Western Electricity Coordinating Council is a regional forum for promoting regional electric service reliability in Western Canada and the Western United States.

Western Grid: The Western Grid includes the western third of the continental United States (excluding Alaska), the Canadian provinces Alberta and British Columbia, and a portion of Baja California Norte, Mexico.

Wetlands: Areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances, does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wide Area Augmentation System (WAAS): Augments GPS with additional signals for increasing the reliability, integrity, accuracy and availability of GPS.

Xeric: Characterized by, relating to, or requiring only a small amount of moisture.

Acronym List

ACSR	Aluminum Core Steel Reinforced
AESO	Alberta Electric System Operator
aMW	average megawatts
APLIC	Avian Power Line Interaction Committee
ARM	Administrative Rules of Montana
BLM	U.S. Bureau of Land Management
BPA	Bonneville Power Administration
CAMA	Computer Assisted Mass Appraisal
CEQ	Council on Environmental Quality
cfs	Cubic feet per second
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CO	Carbon monoxide
CRP	Conservation Reserve Program
dBA	A-weighted decibels
DEQ	Montana Department of Environmental Quality
DGPS	Differential Global Positioning System
DNRC	Montana Department of Natural Resources & Conservation
DOE	U.S. Department of Energy
DOR	Montana Department of Revenue
EA	Environmental Assessment
EEI	Edison Electric Institute
EIS	Environmental impact statement
E.O.	Executive Order
EPA	U.S. Environmental Protection Agency
EMF	Electric and magnetic field
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIRM	Flood Insurance Rate Maps
ft	feet
ft²	square feet
ft/day	feet per day
FWP	Montana Fish, Wildlife and Parks
FWS	U.S. Fish and Wildlife Service

GIS	Geographic Information System
GPS	Global Positioning System
HUC	Hydrologic unit codes
HUD	Housing and Urban Development
Kcmil	1,000 circular mils
kV	Kilovolt
kV/m	Kilovolts per meter
kWh	Kilowatt hour
L_{dn}	day-night average noise level
LIDAR	Light Detection and Ranging
mA	Milliampere
MATL	Montana-Alberta Tie, Ltd.
MBMG	Montana Bureau of Mines and Geology
MCA	Montana Code Annotated
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MFSA	**Montana** Major Facility Siting Act
mG	Milligauss
MHz	megahertz
MPDES	Montana Pollutant Discharge Elimination System
MRMC	Missouri River Medical Center
mVA	Megavolt-amperes
MW	Megawatt
ND	No data
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NESC	National Electricalal and Safety Code
NHP	Montana Natural Heritage Program
NIEHS	National Institute of Environmental Health Sciences
NOAA	National Oceanic and Atmospheric Administration
NO_x	Nitrogen oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRIS	Natural Resource Information System
NWE	NorthWestern Energy
NWR	National Wildlife Refuge
NWS	National Weather Service

OASIS Open Access Same Time Information System
OSHA Occupational Safety and Health Act

PAB Palustrine Aquatic Bed wetlands
Pb Lead
PEM Palustrine emergent
PM_{10} Particulate matter equal to or smaller than 10 microns
$PM_{2.5}$ Particulate matter equal to or smaller than 2.5 microns
PPL Pacific Power and Light
ppm Parts per million
PSD Prevention of Significant Deterioration
PUB Palustrine Unconsolidated Bottom wetlands
PUS Palustrine Unconsolidated Shore wetlands

ROW Right-of-way

SHPO State Historic Preservation Office
SO_2 Sulfur dioxide
SSSA Soil Science Society of America
SWPPP Storm Water Pollution Prevention Plan

TBD To be determined
TMDL Total maximum daily load

USC United States Code
USFWS U.S. Fish and Wildlife Service
USFS U.S. Forest Service

WAAS Wide Area Augmentation System
WAPA Western Area Power Administration
WECC Western Electricity Coordinating Council
WPA Waterfowl Production Area
WRCC Western Regional Climate Center

$\mu g/m^3$ Micrograms per square meter
USDA U.S. Department of Agriculture
USGS U.S. Geological Survey

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- Response to Supplemental Information Requests. Montana Alberta Tie Ltd. Project , 230-kV AC Power Transmission Line – Lethbridge, Alberta – Great Falls, Montana. March 16, 2006.

- Response to Supplemental Information Requests. Montana Alberta Tie Ltd. Project , 230-kV AC Power Transmission Line – Lethbridge, Alberta – Great Falls, Montana. March 30, 2006.
- Appendix I Updated Tables for Sections 4.3.4, 4.7. April 18, 2006.
- Letter to Warren McCullough, Chief, Environmental Management Bureau, Permitting and Compliance Division, DEQ, regarding MATL 230-kV Transmission Line Information Request. January 26, 2007.
- MATL Response to Tetra Tech's January 15th, 2007 Information/Clarification Requests. Received from AMEC by e-mail February 1, 2007
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9.0 Distribution List

FEDERAL AGENCIES

U.S. Department of Agriculture, Farm Service Agency
U.S. Department of Agriculture, Natural Resources Conservation Service
U.S. Department of Agriculture, Rural Utilities Service
U.S. Department of the Interior, Office of Environmental Policy and Compliance
U.S. Department of the Interior, Bureau of Land Management, Montana State Office
U.S. Department of the Interior, Bureau of Land Management, Havre Field Station
U.S. Department of the Interior, Fish & Wildlife Service, Benton Lake National Wildlife Refuge
U.S. Department of the Interior, Glacier National Park
U.S. Department of Interior, U. S. Geological Survey
Environmental Protection Agency, Region 8, Denver
Western Area Power Administration
Advisory Council on Historic Preservation

STATE AGENCIES

Montana Department of Environmental Quality
Montana Department of Fish Wildlife & Parks
Montana Department of Labor/Job Service
Montana Department of Revenue
Montana Department of Transportation
Montana DNRC Trust Lands Management
Montana Environmental Quality Council
Montana Public Service Commission
Montana Department of Labor/Job Service
Montana Department of Natural Resources, State Lands

TRIBAL GOVERNMENTS

National Congress of American Indians
Blackfeet Nation
Confederated Salish and Kootenai Tribes

COUNTY AND LOCAL GOVERNMENTS

City of Great Falls
County of Toole
Glacier County Commission
Pondera County Canal & Reservoir
Pondera County Commissioners
Toole County Board of Commissioners
Toole County Development

ELECTED OFFICIALS

Brian Schweitzer, Governor of Montana
Max Baucus, United States Senate
John Tester, United States Senate
Denny Rehberg, United States House of Representatives
Jerry Black Montana Senate District 14
Edith Clark, Montana House District 14
Montana State Senator Glenn Roush, Cut Bank
Mayor Gary Iverson, Sunburst, Montana
Mayor John P. Shevlin, Conrad, Montana
Mayor Dona Stebbins, Great Falls
Mayor Joni Stewart, Cut Bank
Mayor Larry Bonderud, Shelby

LIBRARIES AND SCHOOLS

Conrad Public Library
Conrad Public Schools
Cut Bank Public Library
Cut Bank Schools
Dutton Public Library
Great Falls Public Library
Montana State Library
Valier Public Schools

ORGANIZATIONS AND INDUSTRY

Acme Ranch Co.
Aiken Ranch Co.
Alliance for the Wild Rockies
American Recreation Properties
Anderson Brothers LLC
Andre O. Lippens Trist
Apex Angus Inc.
Armstrong Ranch Inc.
Benton Lake Land Company
Berland Farms Inc.
Big Sky Wind Project LP
Bookma Farms Inc.
Border States Electric
Bernice Boucher et al
Bouma Brothers
Briggs W.R. Co.
BW Farms Inc.
C & E Farms
C and S Farms
Choteau Acantha
Circle S Ranch Inc.
Compton Signatures
Contemporary Communications LLC
Curry Cattle Co.
Cut Bank Chamber of Commerce
CWC Farms Inc.
Destiny Communications LLC
E & K Torgerson Inc.
Eney Farms Partnership
Euramex Services Limited
Fagan Grain Inc.
Farmland Reserve Inc.
Flesch Farms Inc.
Frank Family Properties LLC
Gain Development
Glacier Colony
Glacier Electric
Glacier Pipeline Co.
Glacier Two Medicine Alliance
Golden West Farm Inc.
Great Falls Development Authority
Great Falls Shooting Sports Co.
Great Falls Tribune
Great Plains Wind & Energy
Habel Commodities, Inc.
Habel, Ray Inc.
Hemry Ronnie Farm Inc.
Heurion Family Trust
Hillside Colony Inc.
Hydro Solutions Inc.
IBEW 44
Invenergy
Iverson Farm Co.
JPE Land & Livestock
JC O'Brien & Sons Inc.
Job Service
KMC Inc.
LTH Farms Inc.
Leaning Pine Lnad Co.
Liberty Farms Inc.
Lightner Farms Inc.
Linco Inc.
MacDonald BCD Inc.
MacDonald Brent Inc.
Marias River Land & Livestock
Mart Cheek
Maurer Farms Inc.
McRae & McRae Enterprises
McAlpine ranches Inc.
McCormick Wind Park
McFarland & Sons
MDOC/RDO
MDT – Utilities
MEIC Energy Program
Mercury Montana Inc.
Merja Farms Inc.
Monroe Brothers
Monroe, Vernon J. Inc.
Montana Alberta Tie Ltd.
Montana Audubon
Montana Grain Growers Association
Montana Green Bulletin

Montana Land Reliance
Montana Milling
Montana Preservation Alliance
Montana Stock Growers Association
Montana Wilderness Association
Montana Wildlife Federation
Mountain View Farm Inc.
Montana AFL/CIO
National Parks Conservation Association
Nelson Acres Holding Co.
Neuman Land & Livestock Inc.
Northern Rockies Medical Center
Northwestern Corporation
NorthWestern Energy
O'Brien J C & Sons, Inc.
Orcutt Inc.
Otness Inc.
Philips & & L Family Limited
Phillips, Shirley Mae
Pondera Economic Development Corporation
Pondera Regional Port Authority
PP&L Montana LLC
PP&S
R4M Blanchet Inc.
Raptor View Research Institute
Ries Land & Cattle Inc.
Rimrock Angus Ranch
Rock Rings Inc.
Rohrer Trust
Roll LLP
Rosholt Farms Inc.
Russell, William T & Gary Trust
S D Lands Inc.
Scattered Acres Farms Inc.
Schlepp Family Tust
Schuette Farms Inc.
Schulter Ranch Inc.
Selstad Trust
Shane Trust
Shant Farm
Sheffels Farms
Shelby Area Chamber of Commerce
Shriner Hospitals for Crippled Children
Sierra Club, Northern Plains Office
Skorupa Farms, A Montana Corporation
Solar Plexus LLC
Somerfeld & Sons Land and Livestock
Starshine
Stetler, Evalina Wystub
Stinson Trust
Sutacres Inc.
Sweetgrass Development
T & L Grain
The Nature Conservancy of Montana
Thomas L. Ellis Trust
Torgerson & Sons Inc.
Torgerson Farms Partnership
Trust Corp of Montana
TW Farms Inc.
V & V Ranch Inc.
Vanderstoep Trust
Vandyke Farms Inc.
Wells Fargo Bank Trustee
Wenzel Farms
Western Interstate Energy Board
Western Resource Advocates
Wind Hunter LLC
Wright Farms Ltd Partnership

PRIVATE CITIZENS

Alan Anderson
Arlene M & Raymond Anderson
Clinton Anderson
Parrish D & Linda A. Andrews
Dale & Mary Ann Arnst
Charyn Ayoub
Glenn E & Lillian I. Baker
Eugene W. & Jacqueline Ball
Hazel M. Ballard
Douglas C. Banka
Fred C. & Ruth E. Banka
Johnel Barcus
Dawn Barrett
David L. Baumann
David Bednar
Paul Belanger
Peggy Beltrone
Dan Bennett
Christian J. & Jackie L. Berg
Gerald M. & Vernon Berger
Elmer Berkram
Gar & Sylvia Jean Berkram
Kenneth Berkram
Shawn & Leanne Berkram
William L. Berland
Rick Billman
Joan Birch
John R. Blanchet
Bernice Blockeel
Fred Bodholt
Bob & Ruth Boudy
Glen M. & Ruby Bouma
Leroy B. Bouma
Ray E. & Kimberly K. Bouma
Donald C. Bradley
Donna Braget
Randy D. Brenteson
Robert J. Brophy
Dede Brown
Jim Brown
Dave Brownell
Mary Ellen Brownell
Stephanie Browning
Gerald & Barbara Bruner
Stanley & Gladys Bunyak
Woodrow Bunyak
John Allen & Deanna Burgmaier
Helen Jean & Robert Cameron
Hugh Edward Cameron
Robert A. Cameron
Kathy Campbell
Robert J. Carney
Rita Carter
Tom & Lorette Carter
Thomas L. & Elizabeth Christiaens
Joe Christians
Christy Clark
Jim Cloud
Edna Clough
Donald & Wendy Connelly
Deirdre Cowden
Ted Crawford
Sam & Elma Crockett
Doug Croghan
Adam & Barbara Dahlman
Steven F. Dahlman
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Donna Dickinson
Aloysius & Cecilia Diekhans

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Lori & Shawn Dolan
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Richard & Joanne Risher
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Travis Fuhringer
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Ronald L. Gessaman
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George Golie
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Flynn Haxton
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Jerry & Donna Hepp
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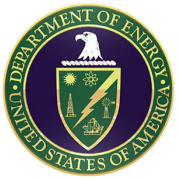
DOE/EIS-0399

Final
Environmental Impact Statement

for the
Montana Alberta Tie Ltd. (MATL)
230-kV Transmission Line

VOLUME 2
COMMENT RESPONSE DOCUMENT

September 2008



United States
Department of Energy



State of Montana
Department of Environmental Quality

COVER SHEET

Responsible Agencies: U.S. Department of Energy (DOE) and Montana Department of Environmental Quality (DEQ) are co-lead agencies; the Bureau of Land Management (BLM), U.S. Department of the Interior, is a cooperating agency.

Title: Final Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (DOE/EIS-0399)

Location: Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties, Montana.

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Abstract: MATL proposes to construct and operate a merchant 230-kV transmission line between Great Falls, Montana, and Lethbridge, Alberta, that would cross the U.S.-Canada border north of Cut Bank, Montana. The transmission line would transmit 300 megawatts (MW) of electric power south and 300 MW north. In order to build and operate the line, MATL must first obtain a Presidential permit (Permit) from DOE to cross the U.S.-Canada border, a Certificate of Compliance (Certificate) from the Montana DEQ to construct the line in Montana, and a right-of-way grant from the BLM to cross any BLM-administered lands.

In March 2007 DOE and DEQ published a joint document (referred to herein as the March 2007 document) that was a Draft Environmental Assessment for DOE and a Draft Environmental Impact Statement (EIS) for DEQ. Based largely on the public comments received on the March 2007 document, DOE determined that an EIS was the appropriate level of review. For the same reasons, DEQ decided to prepare a supplement to its Draft EIS. In February 2008 the agencies published a document (referred to herein as the Draft EIS) that was a Federal Draft EIS and a State of Montana Supplemental Draft EIS. A 45-day comment period began with publication of a Notice of Availability in the *Federal Register* on February 15, 2008 (73 FR 8869), and ended on March 31, 2008, during which the agencies held three public hearings to obtain comments. The Final EIS contains the agencies' responses to comments and revisions to the Draft EIS. Text changes to this Final EIS from the Draft EIS are identified by underlining for corrected or added text and a mark along the left margin.

The EIS analyzes the "No Action" alternative and three alternative transmission line alignments with 11 Local Routing Options and other minor variations to the alternative alignments. The agencies will use the EIS to ensure that they have the environmental information needed to render informed decisions.

An accompanying compact disc contains electronic copies of the Final EIS, including the appendices, which are not included in the paper copy, along with Volume 2 from the Draft EIS, which provides responses to comments received on the March 2007 document. The EIS will be available on DOE's NEPA website at www.gc.energy.gov/NEPA/DOE_NEPA_documents.htm and at DEQ's website at http://deq.mt.gov/MFS/MATL.asp.

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All references are in the Reference section of Volume 1.

RESPONSES TO COMMENTS, INTRODUCTION

Volume 2 contains the comments received on the Federal Draft Environmental Impact Statement (EIS) and State of Montana Supplemental Draft EIS for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line issued in February 2008 (DOE/EIS-0399), referred to herein as the Draft EIS, and the agencies' responses to those comments.

Three hundred fifty-two individuals and organizations submitted comments on the Draft EIS, either orally at public hearings or in writing. The agencies identified 931 individual comments in the hearing transcripts, comment letters, and e-mails received. The agencies read and considered each comment, whether submitted orally or in writing. Because large numbers of comments addressed similar topics or themes, the agencies developed consolidated responses to address many of those related comments in one place.

There are four parts in Volume 2: **Consolidated Responses** (Part 1), **Responses to Individual Comments** (Part 2), a **List of Commenters** (Part 3), and **Duplicate Comments** (Part 4). Part 1, **Consolidated Responses**, presents the agencies' consolidated responses to address topics and themes that were raised in multiple individual comments. Part 2, **Responses to Individual Comments**, provides the scanned images of letters and other written comments submitted to the agencies, and transcripts of the public hearings in which comments were recorded. The agencies' responses are shown beside each comment or on the following pages, with the responses numbered to match the comments. All comments received by the agencies are included. Part 2 presents comments in the order in which they were received and logged by the agencies. An alphabetical index to individual commenters is provided in Part 3

Because some comments were submitted as letters and also read into the record at the public hearings, there are duplicates of some comments. In these instances, Part 2 contains the comments provided at the hearing, together with agency responses, and the original letters are in Part 4, **Duplicate Comments**.

Because many comments raised similar issues and concerns, and to present clear and consistent responses, the agencies grouped comments by major topic in Part 1, **Consolidated Responses**. The agencies prepared these consolidated responses for the convenience of the reader; to avoid repeating the same, often lengthy, responses for multiple comments on the same or similar issues; and to highlight the public's principal issues. If an individual comment is grouped with one (or more) of these major topics, the response to that comment in Part 2 directs the reader to the relevant consolidated response topics. As needed, additional discussion of these major topics has also been provided in some of the individual comment responses.

The agencies wish to thank all those who submitted comments and testimony regarding this project. All comments received – whether a letter, email, or oral comment presented at the hearings are part of the administrative record for the EIS.

Part 1. CONSOLIDATED RESPONSES

Introduction to Consolidated Responses

Many comments on the Draft EIS raised similar issues and concerns. The agencies have grouped comments by major topic and provided consolidated responses to those topics. This part of the document presents these responses. If an individual comment is grouped with one (or more) of these major topics, the response to that comment in Part 2 directs the reader to the relevant consolidated response topics in this section.

The Consolidated Responses categories, arranged alphabetically for the convenience of the reader, are:

Avian and Wildlife Issues
Economic Issues
Farming Issues
Legal and Regulatory Issues
Line Capacity Issues
Line Issues
Safety Issues
Socioeconomic Issues
Soils Issues
Tax Issues
Vegetation, Wetland and Weed Issues
Visual Issues
Wind Farm Issues

Avian and Wildlife Issues

A number of comments were related to impacts on birds, other wildlife, and their habitats. Specific topics included the quality of field surveys for wildlife, impacts on wildlife habitat, habitat fragmentation, possible collision mortality from the transmission line and potential future wind farms, and flyways.

Several commenters expressed concern that the field surveys for wildlife were not sufficient to verify the presence or absence of certain birds or other animals; one commenter suggested that one or two full years of data gathering would be needed. MATL has carried out field studies using censusing protocols including call back surveys. Call back surveys involve playing a recorded call of a selected species and recording the number of individuals that respond to the call. These are species specific surveys and can provide population estimates and indicate trends in the population. Field surveys for wildlife often identify suitable habitat for birds or other animals that are not actually observed during the survey period. Where potential habitat is present but uncertainty exists about whether the habitat is actually used, the EIS assessment of potential impacts conservatively assumes that wildlife is present and could be affected. Similarly, where uncertainty exists, appropriate mitigation would be implemented to avoid or reduce impacts to wildlife that might be present.

The discussion of impacts in the EIS, Section 3.8.3 acknowledges that there might be impacts on wildlife due to disturbance during construction, but that the impacts would be short-term and concentrated within the action area. Also, at crossings of the Marias and Teton rivers the transmission line would span the river, so the impact on bat habitat and bats at those river crossings would be minor.

Several commenters were concerned about the Project fragmenting wildlife habitats. Habitat fragmentation from wind farm development could be a concern if the wind farm were to be sited on undisturbed land, especially if the surrounding landscape had been altered by large-scale disturbances such as conversion to crop land. During operation, presence of a transmission line in grassland habitats could contribute to habitat fragmentation for those grassland species such as grouse that are reported to avoid areas where there are overhead objects that may serve as perches for raptors.

Potential bird and bat mortality from the Project were issues highlighted by several commenters. The analysis of potential bird and bat mortality from wind turbines in Section 4.9 is based on mortality data at wind farms that have modern wind turbine technology. Tables 4.9-1 and 4.9-2 indicate ranges of bird and bat mortalities at wind turbines. Section 4.9 has been revised in the EIS to include data on bird and bat mortality at the Judith Gap Energy Center in Montana. An estimated 100 million to over 1 billion birds are killed each year in the United States due to collisions with human-made structures, including vehicles, buildings and windows, transmission lines,

communication towers, and wind turbines (Erickson et al. 2001). Wind farm-related bird collisions are estimated to represent about 0.01% to 0.02% (i.e., 1 out of every 5,000 to 10,000 fatalities) of the annual bird collision deaths in the United States While the rotation speed of newer model wind turbines is slower than older models, the blade tip speed is still 140 – 200 mph due to the longer blades on newer turbines (National Research Council 2007).

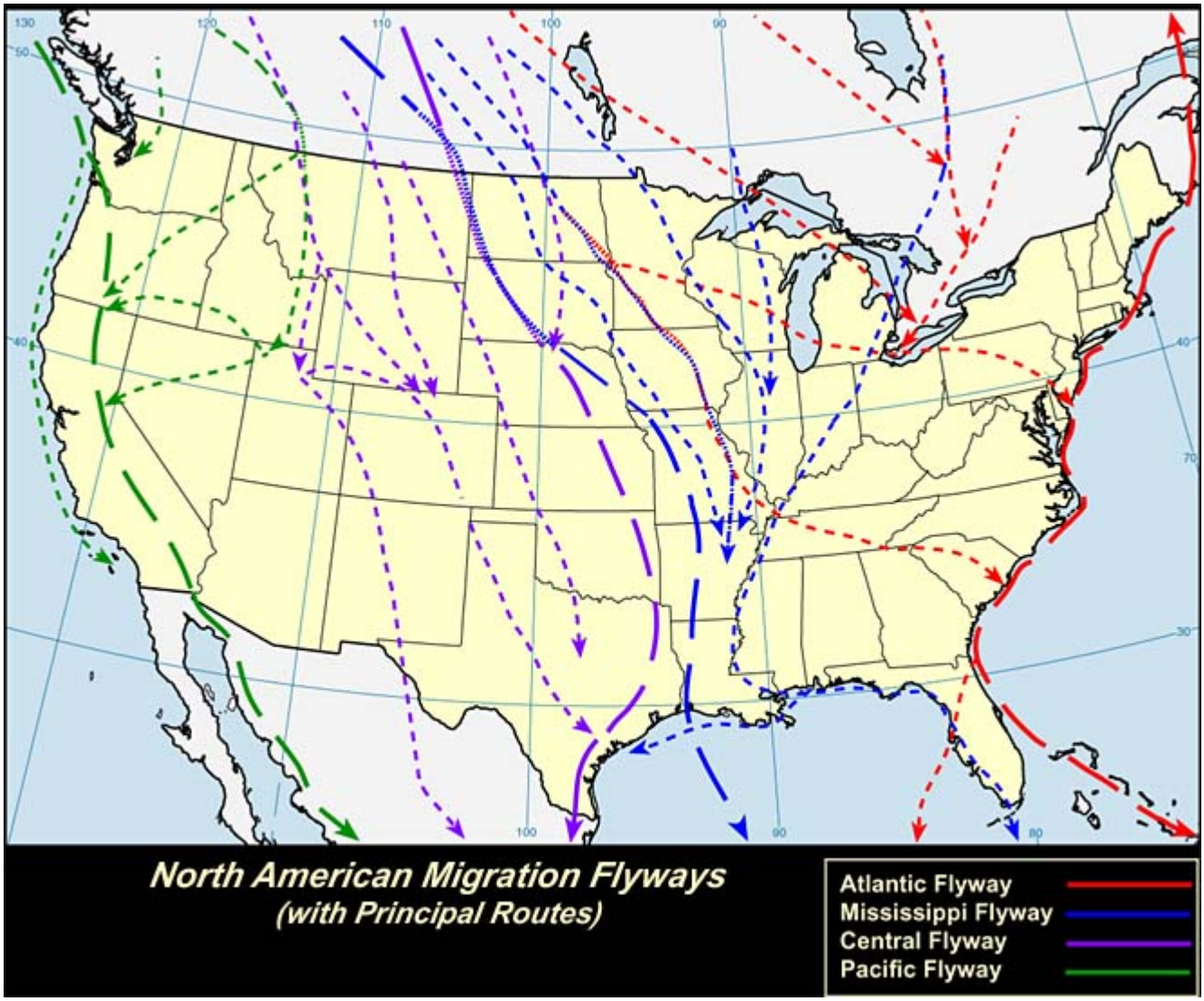
The map on the next page shows bird migration corridors through Montana. Exact migration routes vary from year to year depending on weather patterns and availability of habitat. Biologists from the local Fish Wildlife and Parks and the U.S. Fish and Wildlife Service who were contacted had no knowledge of fine scale flyway maps for the study area, and the agencies are not aware of any finer scale delineation of migration routes within the study area. Within the study area the transmission line would cross portions of the Central and Pacific flyways.

Migrating birds do not all fly at low elevations, and most birds will migrate at heights far above the transmission line (Bellrose 1971). Some birds will, however, migrate at much lower elevations within a zone where they may collide with the transmission line. Although a few passerines collide with transmission lines, researchers generally suggest that larger, less maneuverable birds that fly at low elevation are more likely than passerines to collide with transmission lines. In North America it has been estimated that collisions with transmission and distribution lines may kill anywhere from hundreds of thousands to 175 million birds annually (Manville 2005).

Within the study area more collisions would be expected where the line would cross streams, lakes, and wetlands and where higher densities of larger, less maneuverable transient birds such as pelicans, swans, geese, and ducks are expected. To a lesser extent mortality may also occur in upland areas where smaller more maneuverable passerines would be expected. To reduce avian mortality from collisions, MATL has proposed, and the agencies are likely to require, as appropriate (See Appendix A, Sensitive Areas for the MATL Transmission Line Project, in Appendix F of the EIS.), installation of line marking devices on overhead ground wires within ¼ mile of streams, lakes, and wetlands and within ½ mile of the Benton Lake National Wildlife Refuge boundary.

Following construction of Western Area Power Administration's Great Falls to Conrad 230 kV transmission line, a study was undertaken to determine avian collision mortality from the line at the crossing of Lake Creek (4.85 miles of line about 4 miles west of Benton Lake National Wildlife Refuge), Bole Bench (5.6 miles of line not far from Freezeout Lake, an important waterfowl stopover during migrations), and the Teton River (roughly 1/3 mile of line). That study found an estimated 0.05 to 0.35 waterfowl collisions per 100 flights and concluded that there was no significant impact to waterfowl, shorebirds, or raptors. Authors of the study stated that the lack of

significant impact resulted from routing the line to avoid high collision areas, construction design, and the placement of orange globes on the line at the river crossing. The authors did note, however, that the loss of threatened, endangered, or rare species, if it were to occur, may be biologically significant (Hugie, et al. 1993).



Map from http://www.birdnature.com/allflyways.html

As discussed Section 3.8.2.2, several waterfowl and shorebird species are known to occur in the analysis area. While most knowledge of these species' nesting and foraging habitat is specific to the Benton Lake National Wildlife Refuge, additional use is known for several outlying water bodies including Hay Lake, Grassy Lake, several Waterfowl Production Areas, and a few of the larger, undisturbed prairie potholes. There are no available data on specific migratory pathways or low-level flight feeding pathways. Additional nesting and stopover habitat is likely provided by area wetlands, stock ponds, and the Marias and Teton rivers. This additional information and discussion, including the map above, have been added to Section 3.8.2.2 to further describe the

areas of potential impact associated with migration and daily feeding pathways in relation to area water bodies.

Economic Issues

Some comments addressed economic issues related to the MATL proposal. Commenters were concerned about the distribution of the benefits and costs of the line and the line's effect on the cost of electric power.

The economic benefits and costs of the MATL line are discussed in Section 3.13. Some benefits from the MATL line would go to the owners of the line in the form of returns on investment, and some would go to stockholders in the company. There are some benefits that may be felt by a large number of Montana residents in the form of a possibly more robust transmission grid, and more opportunities for rerouting power during outages. These transmission-related benefits are discussed in Section 3.17. Small increases in tax revenues and worker income as a result of MATL could benefit residents of several Montana counties. Also, Section 1.2.1 states, "Additional expected benefits to Montana generators and consumers include: additional connection with markets that demand energy from sustainable sources, such as electricity generated from wind power; additional wholesale electricity purchasing options for Montana utilities, which could result in lower rates due to an increase in supplier competition; and increased opportunities for western grid system optimization during high Montana export and low Alberta-BC export scenarios." Currently, generators in Montana export approximately 1,400 average MW of electricity. MATL applied to have the capacity to deliver up to 300 MW in each direction and has current contracts for 300 MW in each direction on the line related to new generation not yet built (also see Line Capacity Issues).

There is a possibility that the MATL line could increase electricity prices to Montanans, but there is no hard evidence to support this.

Laws governing siting are different on each side of the United States–Canada border. The benefits and costs to stakeholders will be taken in account when DEQ and DOE make their decisions.

Farming Issues

Numerous commenters were concerned with the issues farmers would face in having to farm around structures, the types of structures, their location, and how they would be compensated for their costs and inconvenience.

Potential impacts to farming and farmers are addressed in several areas of the EIS: Section 3.1 addresses impacts to land use, including farm uses. Table 3.1-4 has been revised to provide revised estimates of the amount of land that would be permanently

removed from production due to support structures under each alternative. Section 3.1 also discusses the short-term disruptions of farming and other land uses that could occur during construction. Potential economic impacts to farmers are presented in Section 3.13, and a detailed study of costs to farmers per transmission structure is provided in Appendix N. Sections 3.1 and 3.13 and Appendix N have been revised. Since the publication of the Draft EIS, MATL has revised its proposal regarding the type of structures that would be placed on diagonal crossings of cropland and Conservation Reserve Program (CRP) land and has proposed a new compensation plan for farmers. The EIS has been revised to reflect these changes and to include analysis of potential impacts of the revised MATL proposal. Additionally, because there were large changes in commodity prices and costs of fuel and fertilizer since development of the Draft EIS, the agencies updated the assessments of costs and benefits for farmers to reflect more current cost and price data.

MATL currently proposes to use monopoles wherever the transmission line crosses cropland or CRP land diagonally, totaling about 56 miles of the line for Alternative 2. The majority of the structures would not be guyed. Where stronger structures are required – for example, where the line takes a turn or a dead end structure is necessary – guy wires are proposed. MATL would work with landowners to develop a placement that minimizes the impact of the transmission line on their property and farming operations (MATL 2008). MATL proposes for Alternative 2 to use H-frame structures instead of monopoles on non-diagonal crossings of cropland and CRP land and in rangeland and pasture land. Only H-frame structures would be used under Alternative 3. Under Alternative 4, monopoles would be used for all crossings of cropland or CRP land.

Following completion of the transmission line, in most cases the right-of-way could be farmed (depending on the individual agreement with MATL), but the presence of structures in a cultivated field would take some land out of production. The presence of the MATL project may also make installation of large center-pivot irrigation systems impractical in some fields. The additional costs of farming around transmission line structures are discussed in Section 3.13. Additional details of the cost analysis were presented in Appendix N of the Draft EIS. That analysis has been updated in the Final EIS to reflect spring 2008 farming input costs and crop prices. The study of the costs of "farming around" includes consideration of the potential for reduced crop yields due to inadvertent over-application of agricultural chemicals.

MATL is a chartered entity in Montana and must abide by the same laws that regulate any corporation in Montana. In its Major Facility Siting Act (MFSA) application MATL has committed to an alternative dispute resolution process as a method to help resolve disagreements over the level of compensation for damages caused by line construction and line maintenance (Section 2.3 in the EIS). MATL has stated:

> In the event that any damages are incurred in the process of regular or unscheduled maintenance, MATL will negotiate a settlement with landowners. MATL will compensate landowners for any crop loss, decrease in production, or any other damages to ensure that they are not adversely affected by MATL's operations. In the unlikely event that there is a dispute regarding damages owing, MATL would seek the advice of a mutually agreed party, such as a crop appraiser, to provide a neutral third party calculation of the damages owing (MATL 2006b).

In addition, MATL has indicated that it would fully compensate for damages caused by MATL and its contractors and this compensation would be paid immediately. If the line is approved, this procedure would become a requirement in the certificate.

MATL has revised its proposal regarding right-of-way width. Owners of land crossed by the transmission line would be paid for a 105-foot easement or right-of-way. In addition, MATL has committed to paying landowners annual compensation to offset lost production and increased input cost resulting from the existence of its facilities. MATL is currently proposing that the annual payment would be reviewed and adjusted every five years to ensure that the payment adequately reflects current input costs, commodity prices, and yields. These payment adjustments would usually be negotiated one-on-one between landowners and MATL. If a dispute arises upon future review of the annual compensation as to the amount of adjustment that is merited, the landowner would again be made the offer to take advantage of the alternative dispute resolution process (MATL 2008b).

MATL has also increased its proposed annual farmer compensation payment. This is discussed in more detail in the revisions to Section 3.13 in the Final EIS. In the June 19, 2008, submittal MATL indicates that their annual payment would compensate the landowner for reasonable, direct, ongoing impacts to his farming and/or ranching operation that may result from the presence of the transmission line. In most instances, this impact involves the additional cost of farming around the poles or associated structures combined with the lost production from those areas in which the structures are located.

MATL would have to obtain easements for access across private lands outside the right-of-way. If access to private roads was required in order to construct the transmission line, landowners would be properly compensated for the use of their roads and any damages.

MATL's revised compensation package proposal is in the EIS, Section 2.3. Additional discussion of costs to farmers is found in Section 3.13.3.2. DEQ could require that farmers receive compensation for any damages caused by transmission line construction, such as crop losses caused by construction during the growing season.

Legal and Regulatory Issues

A number of commenters raised legal and regulatory issues related to the National Environmental Policy Act (NEPA), the Montana Environmental Policy Act (MEPA), MFSA, and other state and Federal requirements related to transmission lines. Specific issues included adequacy of compliance with NEPA and MEPA, the extra-territorial application of NEPA, the consideration of whether wind farms are connected actions, DEQ's authority to regulate the power lines that could connect wind farms to MATL, and use of eminent domain to acquire the right-of-way.

The EIS was prepared in accordance with NEPA and MEPA and their implementing regulations. The agencies determined which alternatives were analyzed in the EIS after receiving public input through the scoping process. MATL had no role in selection of which alternatives were analyzed.

In accordance with Executive Order 12114 (*Environmental Effects Abroad of Major Federal Actions*), the EIS does not assess impacts occurring in a foreign nation unless that foreign nation is not otherwise involved in the action. Because government authorities in Canada have regulatory involvement with the MATL proposal, impacts in Canada are not assessed in the EIS.

There are no connected actions associated with the MATL proposal. In compliance with NEPA, analysis of the potential cumulative impacts of reasonably foreseeable future actions, including wind farms that may use the transmission capacity of the proposed MATL line, is presented in Sections 4.1 to 4.16.

If the transmission lines built to connect individual wind farms to the proposed MATL line are large enough to fall under the definition of "facility" in MFSA (see 75-20-104(8), MCA) and are not exempted by statute, they would undergo a review process by DEQ. Regardless of whether they fall under MFSA, the companies proposing such lines would have the responsibility to negotiate easements with the landowners.

Montana Alberta Tie Ltd. is the chartered and recognized entity within the State of Montana under which name MATL would be conducting operations. It would be subject to applicable legislation within the State of Montana and the United States like any other United States corporation.

Section 3.18 lists the findings and determinations that DEQ must make under MFSA section 75-20-301, MCA, before the line can be approved. If DEQ cannot make the findings required in section 75-20-301, MCA, it is required to deny the certificate (75-20-301(4), MCA).

A landowner has the option of receiving a negotiated settlement for use of the land if and when the land is used for a facility by easement, right-of-way, or other legal conveyance in either a lump sum or in not more than five consecutive annual installments (75-20-409, MCA).

The standard easement agreement between MATL and the landowner contains terms that absolve the landowner of all liability for accidental damage to MATL's facilities (Williams 2008a).

Eminent Domain

DEQ does not have the authority to dictate what MATL pays to landowners for easements. This would be determined between MATL and each individual landowner, ideally in a negotiated settlement. If a negotiated settlement could not be agreed upon, a condemnation proceeding under the laws of eminent domain might be used to obtain the easement. Eminent domain may only be exercised if the purpose for which it is being exercised is a public use. Those public uses are identified and listed by the Legislature in Section 70-30-102, MCA. Subsection 37 of that statute lists electrical power lines as a public use. Section 70-30-102, MCA, does not distinguish between electrical power lines built by private enterprise and a publicly owned utility. Before private property can be taken, Section 70-30-111, MCA, requires the condemner to demonstrate that the public interest requires the taking based on the following findings:

1. the use to which the property is to be applied is a use authorized by law;
2. the taking is necessary to the use;
3. if already being used for a public use, that the public use for which the property is proposed to be used is a more necessary public use; and
4. an effort to obtain the property interest sought to be taken was made by submission of a written offer and the offer was rejected.

As indicated above, an electric transmission line is a use for which condemnation is authorized by law. In regard to whether the taking is necessary, Montana courts have determined that the necessity need not be absolute or indispensable. Rather, a taking is necessary if it "is reasonable, requisite, and proper for the accomplishment of the end in view, under the particular circumstances of the case." As indicated in Section 3.18, DEQ has determined the need of the electric transmission line proposed by MATL.

As indicated in the handbook entitled "Eminent Domain in Montana" published by the Legislative Environmental Policy Office in May of 2001, "A public use does not have to be a project that directly benefits the entire public or even the landowner whose property is taken through eminent domain. It may be a project that benefits Montana

citizens as a whole through greater economic development or increased access to communications." As stated by the Montana Supreme Court in Ellinghouse v. Taylor (1897), 19 Mont. 462, 48 P. 757, "Persons have been allowed the right of eminent domain on the theory of public use, in the construction of dams for the operation of grist and saw mills, in the reclamation of swamp lands, and in other similar instances that might be enumerated where the public had no direct interest in these operations, whose main end was mere private gain, and where the benefit to the people at large could result indirectly and incidentally only from the increase of wealth and development of natural resources." More information on eminent domain proceedings and compensation for easements can be found on the Office's website:

(http://leg.mt.gov/content/publications/environmental/2001edhandbook.pdf).

Any Presidential permit that DOE may issue would not convey any rights of Federal eminent domain.

Line Capacity Issues

A number of comments question whether the capacity of the MATL line would be adequate to handle the potential power transmission increases in the future and the ability for power to be shipped past the termination points of the MATL line. Commenters asked about MATL's responsibility for extending transmission capacity beyond Great Falls. They also expressed concern that the EIS does not analyze the impacts of constructing new transmission capacity beyond the proposed line's termination point at Great Falls.

MATL indicated (MATLb) that:

a. MATL had applied and designed for a path rating of 300 MW in both directions.

b. The 1590 kcmil Falcon conductor selected for the project can carry up to 600 MW and ensures low line losses at the current applied for capacity of 300 MW.

c. MATL's Board of directors has not approved an initiative to increase the capacity of the project beyond 300 MW. The capacity of this project could only be increased after the appropriate technical, economic and regulatory requirements have been met.

The line is rated at 300 MW of continuous load at the present time. Whether the line takes 300 MW from north to south, south to north or midpoint each direction, the line is still rated at 300 MW, not 450 or 600 MW. The mention of a 400 MW potential loading is explained in that if the MATL line would be loaded to the 300 MW, an extra contingency load of up to 100 MW must be carried by the line to support existing power facilities in the area in case of outages on other transmission lines.

Table 2.3-1 indicates the thermal capacity of the line rated at 625 MVA at 212° Fahrenheit which equates to 600 MW at a .96 power factor. The current flow at 600 MW would result in extremely high line losses that make that load economically infeasible. If this conductor were to carry 600 MW, roughly 20 percent of the energy (roughly 115 MW) would be lost in transport (MATL 2007b). MATL has made commitments to its customers who have signed contracts that line losses will not exceed 10 percent.

According to MATL (2007b):

> To increase the capacity to 400 or 600 MW a second phase shifting transformer could theoretically be installed in parallel at the substation near Lethbridge, but engineering studies would be required to determine the practicality of installing this equipment and the limitations on incremental capacity that could be added this way. MATL estimates that the engineering studies and procurement and installation of a second phase shifting transformer would cost $15 to $20 million (USD).
>
> In addition, the voltage level at the Marias substation is forecast to drop below Western Electricity Coordinating Council (WECC) standards when power transfers between the Great Falls and Lethbridge terminals are in the range of 390 to 450 MW, depending on system conditions. It may be possible to raise the "end-to-end" power transfer rate beyond this range. Engineering studies would be required to confirm the feasibility of this proposed solution. The estimated range of costs to conduct such studies, perform the detailed engineering, procure and construct the additional capacitors is $10 to $15 million (USD).
>
> Lastly, the delivery and take–away capacity at Great Falls and Lethbridge would require upgrades to transfer more than 300 MW of power. MATL has not submitted interconnection requests to either NorthWestern Energy or the Alberta Electric System Operator for the upgrades required to transfer 400 or 600 MW into their respective systems, so the costs of these upgrades is not known. MATL is contributing approximately $5 million for network upgrades at NorthWestern Energy's Great Falls substation as part of MATL's existing 300 MW interconnection request.

The proposed MATL transmission line would be theoretically capable (based on its thermal rating) of transmitting up to 600 MW in each direction without any changes to the transmission line itself or to the rights-of-way. However, the amount of power that any transmission line may be able to transmit is usually limited not by its thermal rating but by the ability of the existing transmission system to accept the power from the line. In this case, MATL has prepared transmission studies that indicate that the existing transmission system at each end of the line (in Canada and the United States) would be capable of accepting up to 300 MW. MATL has entered into contracts for 300 MW of

transmission. Although the transmission capacity of the proposed line could be upgraded without changes to the poles or structures or easements, such an upgrade would require other modifications to the United States or Canadian transmission system, as well as extensive modifications to the facilities in substations along the line. Any increase in power on the MATL line beyond 300 MW could only happen after appropriate transmission studies were performed to identify the needed transmission system upgrades and then the implementation of those upgrades. Such an increase in power flows on the MATL line would require revised permits from Federal, State, and provincial regulators.

As part of its Presidential permit application, MATL has provided technical studies demonstrating the operation of the existing regional power system with 300 MW transmitted over the MATL line. If a Presidential permit is granted, there would be a condition in the permit limiting the operation of the MATL line to 300 MW in either the import or export mode. If MATL wanted to increase the amount of power transmitted over the line, it would need to apply to DOE for an amendment to the Presidential permit. System transmission studies would need to be performed in order to determine what, if any, enhancements to the United States and/or Canadian electrical system would need to be made in order to accommodate the increased power flow. In order to decide on any amendment, DOE would need to consider the environmental impacts of the proposed amendment, determine the impact of the amendment on electric reliability, and obtain favorable recommendations from the Departments of State and Defense.

Currently there are no permit applications to increase transmission capacity south or west from Great Falls, so the construction of additional transmission capacity beyond Great Falls is not within the scope of this EIS. Eventually, additional economically viable transmission lines are likely to be built as need for transmission service grows. DEQ is aware that transmission planners are examining options to accommodate additional generation in the vicinity of Great Falls.

Line Issues

Comments addressed construction of the line underground, use of monopoles instead of H-frames, easement widths, and substations connecting wind farms to MATL.

Some commenters suggested that the transmission line should be placed underground. Building the line underground was considered but dismissed from detailed study after considering costs and impacts, as discussed in Section 2.7 – Alternatives Considered but Dismissed. The discussion includes information on the additional costs and the potential impacts and benefits associated with this type of construction.

For its proposed alignment (Alternative 2), MATL has increased its commitment to use monopole structures from its original commitment of 25 miles to its current commitment to use them wherever cropland or CRP land is crossed diagonally (about 56 miles). H-frame structures would be used where the line crosses cropland or CRP land parallel or perpendicular to the crop pattern. MATL's preferred route, Alternative 2, incorporates additional north/south and east/west routing adjustment as compared to Alternative 3. Alternative 3 would generally follow the NorthWestern Energy (NWE) 115-kV transmission line diagonally from Great Falls to Cut Bank and would be the shortest route of the three action alternatives. Alternative 4 includes additional routing modifications to reduce farmland impact and would require use of monopoles on all crossings of cultivated or CRP land.

Since the Draft EIS, MATL has increased its proposed right-of-way easement width from 45 feet to 105 feet (see Section 1.6 in the EIS).

MATL has successfully acquired portions of the proposed right-of-way or options in Montana. The company would continue to pursue negotiations with affected landowners along the route that is approved by the agencies.

Any substations required to interconnect with the MATL line would be constructed by MATL on behalf of and at the expense of the interconnecting party. This would be done in accordance with the Standard Large Generator Interconnection Procedures that form part of MATL's tariff approved by the Federal Energy Regulatory Commission (FERC).

Safety Issues

Comments addressed the adequacy of ground clearance under the proposed transmission line and the safety of working or farming under and around the proposed line.

MATL has changed its application relative to minimum ground clearance. The minimum ground clearance of MATL's proposed line would comply with the requirements of the National Electrical Safety Code. On cultivated and CRP lands, expected heights of the tallest farming equipment (20 feet), including antenna heights, were used to determine the new minimum ground clearance of 27.2 feet for the safe operation of farm equipment under the line. Additionally, MATL has indicated it would work with farmers to alleviate the issue of tall radio antennas on farm equipment.

In all cases, ground clearances are calculated with the conductor temperature at 100 degrees Celsius (212 degrees Fahrenheit) and the ambient temperature at 32 degrees Celsius (90 degrees Fahrenheit). This is equivalent to a situation where the conductors are moving close to 600 MW of power (twice the rating of the line) on a warm summer day, excluding power factor effect.

Socioeconomic Issues

Some people expressed their expectations regarding the impacts of the Project and potential wind farms on local socioeconomic conditions, such as school enrollment, property values, employment, and property tax revenues. These topics are considered in Sections 3.13 (for the Project) and 4.14 (for cumulative impacts, including the impacts of potential wind farms).

Impacts from the transmission line on school enrollment were not examined in detail in the EIS. The relatively low number of employees expected during Project construction and the relatively short duration of activities occurring in a given locale make it unlikely that schools would incur any measurable direct impacts. Impacts to schools and taxation are discussed in Section 3.13.3.2. Cumulative impacts to schools are discussed in Section 4.14.

Potential impacts on local employment from the Project are discussed in the Section 3.13.3.2 in the EIS). Transmission line construction is estimated to employ about 55 people over a 6-month period, with average wages of $23 per hour, generating approximately $4.6 million in income over the construction period. The number of operations and maintenance workers is not known, but would be much smaller; these workers would be paid about $25 per hour.

Some commenters expressed concerns about how the Project may affect their property value. Potential effects on real estate values are discussed in Section 3.13.3.2. The analysis used the latest studies available on the effect on real estate values from transmission lines.

Estimated property tax revenues from the proposed transmission line are presented in Table 3.13-18).

Soils Issues

Commenters expressed concern about soil compaction and erosion from construction and maintenance vehicles traversing the fields and field roads.

Soil-related impacts associated with access road construction and vehicle movement are a potential problem with any linear facility and are discussed in Section 3.2. Table 2.3-4, MATL Proposed Environmental Protection Measures, lists actions MATL would

implement to either minimize or avoid soil impacts. It states, "At sites with soils that are sensitive to compaction, construction would be done with low bearing-pressure vehicles or compacted soil would be rehabilitated after construction by discing, plowing or other means."

Appendix F, Revised Draft DEQ Environmental Specifications, includes several measures that deal with soils and access roads that are likely to become conditions to the Certificate of Compliance, if it is approved. Section 2.3.2 of Appendix F states, "In order to prevent rutting and excessive damage to vegetation, construction will not take place during periods of high soil moisture when construction vehicles will cause severe rutting." Section 2.7 of Appendix F includes 12 separate specifications that would apply to soils and access roads. The DEQ specifications are intended to help minimize soil compaction, erosion, and sedimentation and ensure that the soils and roads are returned to a condition as good as or better than when construction began. Compliance with these standards should minimize destruction of soils.

Additional information on soil compaction from other than farm equipment has been added to Section 3.2.3.2 in the EIS.

Erosion

As described in Table 2.3-4, Section 3.2.3, and Appendix D, project specifications would include preparing an erosion control plan and implementing best management practices (e.g., water bars, drainage contours, straw bales, filter cloth) in areas with susceptible soils in order to minimize erosion impacts. Driving around coulees and steep draws, rather than through them, would minimize or avoid erosion. Appendix F, Section 2.11, includes 23 separate specifications that apply to erosion and sediment control that are likely to become conditions to the Certificate of Compliance, if it is approved. Compliance with these standards should minimize impacts from erosion.

Tax Issues

A number of comments asked questions or expressed opinions about the taxation status of the MATL line in Montana.

Additional information on the relevant tax laws has been added to Section 3.13.3.2. The revised analysis in that section is based on current laws, including the May 2007 tax rate reduction on certain transmission lines and other applicable tax abatements.

MATL would pay property taxes in five Montana counties as well as paying Montana income tax.

House Bill (HB) 3 from the 2007 May Special Legislative Session states that the 3% tax rate (down from 12%) will be allowed for "(p) all property of electric transmission lines, including substations, that originate at facilities specified in this subsection (1), with at least 90% of electricity carried by the line originating at facilities specified in this subsection (1) and terminating at an existing transmission line or substation that has commenced construction after June 1, 2007".

The Act identifies a number of facilities that, if connected to the MATL line, may make MATL eligible for favorable tax treatment. Under Montana law (15-24-3111, MCA), MATL would be eligible for a tax abatement of 50% of its taxable value for a qualifying period, not to exceed 19 years, that would include the construction period and the first 15 years after the facility commences operation. Because the agencies do not know if MATL would receive such an abatement, tax revenue for each affected county has been estimated at the 3% level as specified in HB 3. If MATL were to receive an abatement, its tax liability would be about half of those values for up to 19 years.

Vegetation, Wetland, and Weed Issues

Commenters expressed concerns about spread of weeds and impacts to vegetation and wetlands. Weed control and disturbance of wetlands and riparian areas were the main areas addressed by the commenters.

Vegetation

There are very few sites with riparian vegetation in the study area. Generally these areas are located low in drainages adjacent to wetlands and streams. Because transmission line structures are usually located at high points or in uplands, water bodies are normally spanned, and it is unlikely that much riparian area would be affected. There is no tall riparian vegetation at the proposed Marias River crossing site.

At the Teton River crossing, Alternative 2 crosses land near the river that is currently enrolled in the CRP program. This crossing would avoid all tall cottonwood trees, while the few low-growing willows there could easily be spanned.

The Local Routing Option to the east of MATL's proposed Teton River crossing might require removal or topping of several cottonwood trees on the south side of the river to allow for the sag of the conductors. This routing option was located to avoid placing structures in fields or in the inundation zone described in a firsthand account of the location of floodwaters from the 1964 flood (close to a 500-year flood event). (There are no 100-year flood maps available for this portion of the Teton River.) Under this Local Routing Option structures could be sited on high terraces outside the riparian zone. Although cottonwoods might be affected, willows could probably be spanned by this Local Routing Option.

Another Local Routing Option located farther west and upstream was suggested that would avoid most cropland. This upstream location would not be as high above the present river channel and is believed to be more vulnerable to flood damage. That area has younger riparian vegetation that is just becoming established and would probably grow up around the line over the project lifetime. This vegetation could later require clearing or topping so that it would not interfere with the sag of the line. It is more likely that structures would have to be located in this young riparian zone.

DEQ would hold restoration and revegetation bonds for a period of up to 5 years or until perennial vegetation exclusive of noxious weeds and tall growing trees, attains a 90 percent ground cover when compared to similar undisturbed vegetation outside the right of way.

Wetlands

MATL has stated that its goal is to avoid impacts to floodplains and wetlands by avoiding placement of any structure (or related construction impact) within a regulatory floodplain or jurisdictional wetland and using construction buffers to avoid impacts to wetlands or other waters of the United States. Therefore, the agencies currently expect that the project could be completed with little direct disturbances to streams and wetlands because most of these waters can be spanned. Thus, no compensatory mitigation should be needed. If, however, during construction, a site specific wetland-impact issue arises, the U.S. Army Corps of Engineers (USACE) would be contacted to ensure compliance with Section 404 of the Clean Water Act and Section 318 of the Montana Water Quality Act. DEQ would be contacted for a 318 authorization if water were present. If work in streams or wetlands were necessary, the measures listed in sections 2.11.5, 2.11.6, and 2.11.9 of the revised Appendix F would likely apply as would any measures required by the USACE permits or DEQ 318 authorizations, and the agencies could require mitigation for lost wetland functions or values.

Possible impacts to wetlands are identified in EIS sections 3.6.2 and 3.6.3. The agencies are considering a revision to MATL's proposal for an area north of Great Falls to remove an angle structure from the southern end of Black Horse Lake and place this structure on higher ground west of the highway. The values in the EIS for wetlands crossed include all wetlands within a 500-foot-wide corridor; these values overstate the potential impact because they include areas that would be completely avoided by the narrower 105-foot right-of-way. The most probable general short-term, indirect impacts to wetlands and waters of the United States would include additional noise and vehicle traffic, an increase or decrease in surface water runoff to an area due to an access road grade, and increased soil erosion and sedimentation resulting from any soil disturbances. Although Alternative 4 would cross the largest area of wetlands within the 500-foot-wide corridor, it would cross the least area of wetlands associated with lakes.

Under MFSA rules, applicants are required to identify wetlands greater than 20 acres in size (Circular MFSA-2, Section 3.4(1)(u)). This size was selected to recognize that smaller wetlands can usually be spanned. At this time it appears that all wetlands could be spanned or otherwise avoided through final routing, except for one angle structure in Black Horse Lake, but final design is not yet complete. The revised Draft DEQ Environmental Specifications in Appendix F would require MATL to delineate wetlands within 250 feet of the approved alignment and would not allow construction activities within a 50-foot buffer around wetlands, so that wetlands would not be affected by construction disturbance and maintenance access.

All of the proposed alternatives would cross Teton County in an area (approximately from the town of Brady south to just north of Benton Lake NWR) for which no National Wetland Inventory (NWI) maps were available for use during preparation of the Draft EIS. Thus, to ascertain the potential impact of the proposed action on wetlands in that area, the agencies reviewed 2005 aerial photographs and, as stated in the Draft EIS, determined that no large wetland or concentration of smaller wetlands would cover more than approximately 500-linear feet of any of the proposed alignments. Therefore, the agencies concluded that through engineering design and implementation of mitigation measures existing wetlands along the entire proposed line could be completely spanned by the typical ruling span of 800 feet (except for one angle structure in Black Horse Lake). NWI maps are now available for this area, and the agencies have revised Table 3.6-2 in the EIS to include the new information on wetlands in Teton County. The new information does not change the agencies' earlier determination regarding the ability to span wetlands in Teton County.

The agencies would require installation and maintenance of line marking within ¼ mile of wetlands to reduce avian mortality from collisions.

Weeds

MATL would be responsible for weed control within the right-of-way for weeds due to its activities. MATL has prepared an integrated weed control program that includes spraying target weed species in coordination with the Bureau of Land Management (BLM), state weed coordinator, and county weed boards and groups (see the EIS, Appendix C – MATL Noxious Weed Control Plan, and Appendix F – Revised Draft DEQ Environmental Specifications). Herbicides would be used in a safe manner in accordance with Federal label instructions and restrictions. Herbicides would not be used in certain areas identified by the landowners, DEQ, BLM, or the state and county weed boards. Section 4.4 in the revised Appendix F relates specifically to Herbicides and Weed Control measures and includes the requirements to employ Montana licensed applicators, use proper herbicide application methods, and inspect and monitor the right of way.

Visual Issues

Several commenters questioned the impact that the line or potential wind farms would have on the area viewshed and the possibility of requiring mitigation for wind farm impacts. Commenters were concerned about the intrusion of the line onto the landscape and locations from which the line would be visible. For wind farms, there were particular concerns about possible effects on views in and near Glacier National Park and the Rocky Mountain Front.

Table 3.15-1 notes that major visual effects would result from the proposed line for a distance of 1/2 mile from residences and primary travel routes, and minor effects would extend from 1/2 mile to one mile from the line.

Due to the distance from Glacier National Park to the proposed transmission line of 50 miles or more, the MATL line would not be visible from the park.

For a wind farm directly connecting to MATL to be economically viable, it would need to be no farther than 40 miles from the line. The park would be about 10 miles farther west from a wind farm located 40 miles west of the transmission line. At a distance of 10 miles, the visual impact to Glacier National Park visitors is likely to be low.

The Glacier Wind Project is a wind farm being developed by NaturEner approximately 10 miles southeast of Cut Bank (referred to as the McCormick Ranch wind farm in the Draft EIS). Other known areas of interest for potential wind farm development near Cut Bank, shown on Figure 4.1-2 are more than 50 miles to the east of the park.

DEQ has no legal authority to require mitigation for wind farm impacts.

Wind Farm Issues

A number of comments were concerned with siting of wind farms and impacts associated with the wind farms that are expected to connect to the MATL line. Commenters were concerned about the location of future wind farms and the lack of regulation of wind farms located on private property. Some comments were concerned with bird and bat mortality at wind farms; that topic is addressed in the Avian and Wildlife Issues section of the Consolidated Responses.

Neither DEQ nor DOE would have a regulatory role in siting future wind farms or have regulatory jurisdiction over wind farm development or operations. Specific proposals could, however, necessitate water quality permits under the Montana Water Quality Act (75-5-101 et seq., MCA). In compliance with NEPA, the potential future development of wind farms is considered in the EIS as a potential source of cumulative impacts. Assessment of potential cumulative impacts of reasonably foreseeable actions,

including wind farms that may use the transmission capacity of the proposed MATL line, is in Sections 4.1 to 4.16.

As a basis for assessing the impacts of potential wind farms, the agencies assumed that wind farms are most likely to be located in windy areas, within about 30 to 40 miles of an existing transmission line with available transmission capacity, and where agreements can be negotiated with affected landowners. Areas within 30 to 40 miles of the MATL line would have the highest probability for future wind farm development due to the cost of interconnecting power lines from the wind farms to the transmission line. Any substations necessary for connection to the MATL line would be built by MATL on behalf and at the expense of the interconnecting party in accordance with applicable FERC tariffs.

The agencies based their analysis of cumulative impacts from wind farm development on the best information available. Although the analysis does not include site-specific and design-specific impacts, it does provide comprehensive identification of the potential adverse impacts and possible mitigations of wind farm development and conservative estimates of the magnitude of those impacts. The assessment of the potential cumulative impacts of wind farms that may connect with the MATL line is based on realistic estimates of likely locations and conservative estimates of the number of wind turbines that could be built. More detailed assessment would require specific information on the locations and designs of wind turbines, associated transmission lines, and other associated facilities. That information either does not exist or is not available to the agencies. The agencies attempted to contact potential developers of wind farms that have contracts with MATL for information about their project locations. None of the developers that propose to connect to the MATL line has indicated a willingness to release detailed plans. Often projects are announced without details, and the announced projects may either change or not materialize.

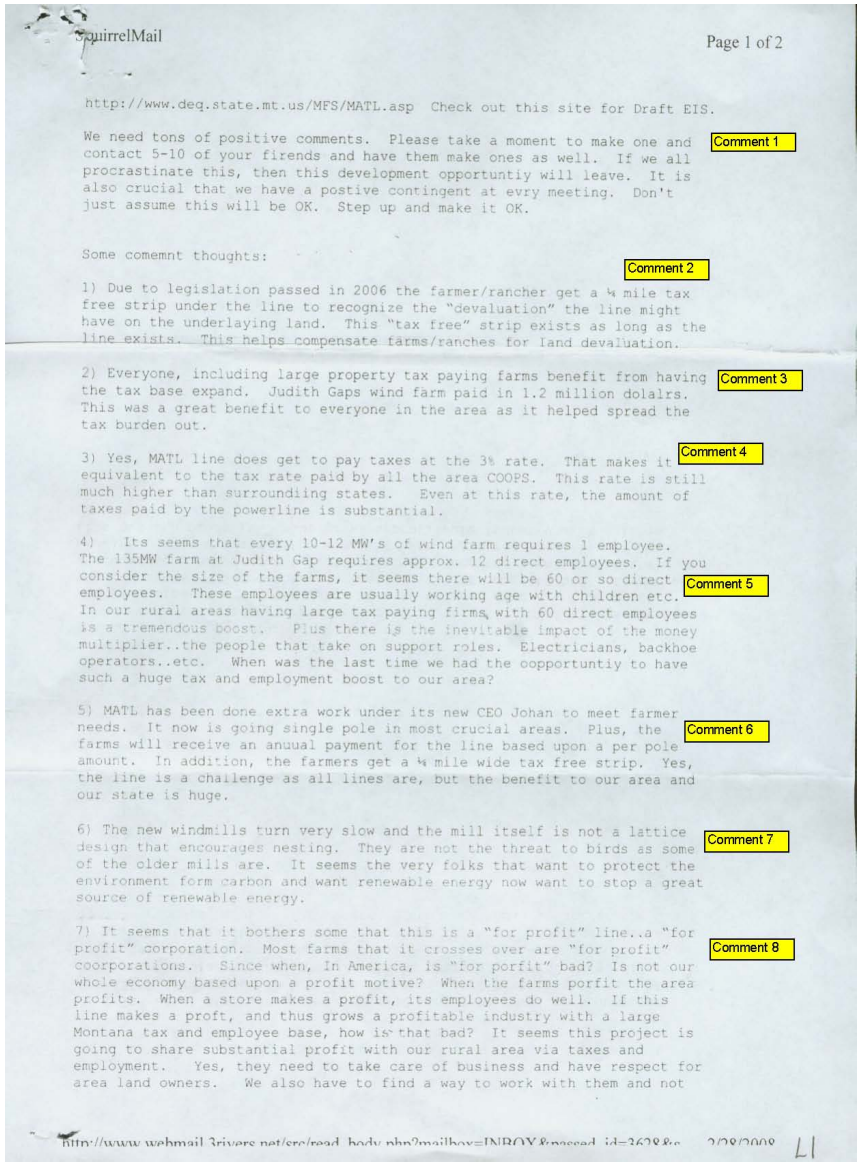
The only wind farm known to the agencies is NaturEner's Glacier Wind Farm, referred to as the McCormick Ranch Wind Park in the Draft EIS. USFWS provided the agencies with a map outlining the extent of this wind farm; it appears as Figure 4.1-2 in the EIS. NaturEner is proceeding with development with the intent of interconnecting to other transmission lines in the area. This wind farm, which would have up to about 140 turbines, is located north of the Marias River between the McCormick and Sullivan Bridge roads. NaturEner still has an agreement with MATL for 300 MW to be shipped to the north and eventually might choose to exercise some of its rights on the MATL line with power generated at the Glacier Wind Farm. NaturEner might also build another wind farm in the area or choose to otherwise exercise its rights to firm capacity if the MATL line is built.

New wind farms that use transmission capacity on the proposed MATL transmission line would require new power lines to connect them to the MATL transmission line. These lines would be built by the wind farm developers, and interconnections would be coordinated with MATL. It is unlikely that new lines would be built underground. Instead, it is most likely that these new lines would be overhead lines. However, landowners would negotiate details with the wind farm developers. The use of eminent domain is a possibility if agreements could not be reached with landowners (see Eminent Domain in Legal and Regulatory Issues). If the transmission lines are large enough to fall under the definition of "facility" in the Major Facility Siting Act (75-20-104(8), MCA) and not exempted by statute, they would undergo a review process by DEQ.

Details on other potential wind farm locations, number of turbines, and other project-specific information are not available. This information is not necessary for certification of the MATL transmission line. In the absence of information from prospective wind farm developers, it would be speculative to assume that one alignment of the MATL line would be better than another relative to the ability of wind farms to interconnect to the line.

It is not possible to accurately determine how many permanent workers would be employed by wind farms made possible by construction of the MATL line. Section 4.14 includes estimates of job creation for different levels of potential wind development in the study area.

Potential visual impacts associated with wind farm development are discussed in Section 4.16 (see Visual Issues in Consolidated Responses).



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http://www.deq.state.mt.us/MFS/MATL.asp Check out this site for Draft EIS.

We need tons of positive comments. Please take a moment to make one and contact 5-10 of your firends and have them make ones as well. If we all procrastinate this, then this development opportuntiy will leave. It is also crucial that we have a postive contingent at evry meeting. Don't just assume this will be OK. Step up and make it OK. Comment 1

Some comemnt thoughts:

1) Due to legislation passed in 2006 the farmer/rancher get a ¼ mile tax free strip under the line to recognize the "devaluation" the line might have on the underlaying land. This "tax free" strip exists as long as the line exists. This helps compensate farms/ranches for land devaluation. Comment 2

2) Everyone, including large property tax paying farms benefit from having the tax base expand. Judith Gaps wind farm paid in 1.2 million dolalrs. This was a great benefit to everyone in the area as it helped spread the tax burden out. Comment 3

3) Yes, MATL line does get to pay taxes at the 3% rate. That makes it equivalent to the tax rate paid by all the area COOPS. This rate is still much higher than surroundiing states. Even at this rate, the amount of taxes paid by the powerline is substantial. Comment 4

4) Its seems that every 10-12 MW's of wind farm requires 1 employee. The 135MW farm at Judith Gap requires approx. 12 direct employees. If you consider the size of the farms, it seems there will be 60 or so direct employees. These employees are usually working age with children etc. In our rural areas having large tax paying firms with 60 direct employees is a tremendous boost. Plus there is the inevitable impact of the money multiplier..the people that take on support roles. Electricians, backhoe operators..etc. When was the last time we had the oopportuntiy to have such a huge tax and employment boost to our area? Comment 5

5) MATL has been done extra work under its new CEO Johan to meet farmer needs. It now is going single pole in most crucial areas. Plus, the farms will receive an anuual payment for the line based upon a per pole amount. In addition, the farmers get a ¼ mile wide tax free strip. Yes, the line is a chailenge as all lines are, but the benefit to our area and our state is huge. Comment 6

6) The new windmills turn very slow and the mill itself is not a lattice design that encourages nesting. They are not the threat to birds as some of the older mills are. It seems the very folks that want to protect the environment form carbon and want renewable energy now want to stop a great source of renewable energy. Comment 7

7) It seems that it bothers some that this is a "for profit" line..a "for profit" corporation. Most farms that it crosses over are "for profit" coorporations. Since when, In America, is "for porfit" bad? Is not our whole economy based upon a profit motive? When the farms porfit the area profits. When a store makes a profit, its employees do well. If this line makes a proft, and thus grows a profitable industry with a large Montana tax and employee base, how is that bad? It seems this project is going to share substantial profit with our rural area via taxes and employment. Yes, they need to take care of business and have respect for area land owners. We also have to find a way to work with them and not Comment 8

http://www.webmail.3rivers.net/src/read_body.php?mailbox=INBOX&passed_id=3628&c... 2/28/2009 LI

Response 1: Comment noted.

Response 2: The information in the comment is correct and was considered in the analysis presented in Section 3.13.

Response 3: Comment noted.

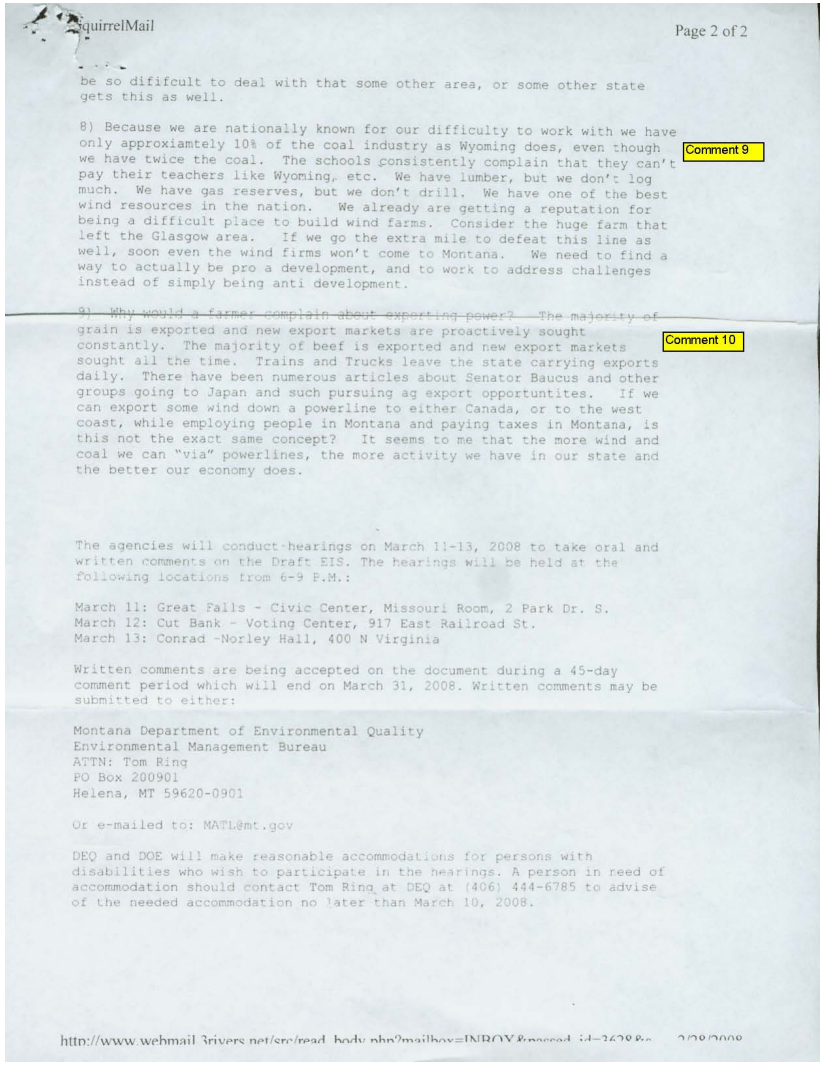
Response 4: See Tax Issues in the Consolidated Responses section for a discussion pertaining to tax revenue resulting from passage of House Bill 3.

Response 5: The economic impacts and benefits of wind farms are discussed in Section 4.14.

Response 6: Comment noted. See the discussion of Economic Issues in the Consolidated Responses section and the EIS for discussion of these revisions to MATL's proposal.

Response 7: The analysis of potential bird and bat mortality from wind turbines in Chapter 4 of the EIS is based on mortality data at wind farms that have modern wind turbine technology. While the rotation speed of newer model wind turbines is slower than older models, the blade tip speed is still 140 – 200 mph due to the longer blades on newer turbines. (Manville 2005 and Danish Wind Industry Association undated). See the discussion of Avian and Wildlife Issues in the Consolidated Responses section.

Response 8: Comment noted.



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be so dififcult to deal with that some other area, or some other state gets this as well.

8) Because we are nationally known for our difficulty to work with we have only approxiamtely 10% of the coal industry as Wyoming does, even though we have twice the coal. The schools consistently complain that they can't pay their teachers like Wyoming, etc. We have lumber, but we don't log much. We have gas reserves, but we don't drill. We have one of the best wind resources in the nation. We already are getting a reputation for being a difficult place to build wind farms. Consider the huge farm that left the Glasgow area. If we go the extra mile to defeat this line as well, soon even the wind firms won't come to Montana. We need to find a way to actually be pro a development, and to work to address challenges instead of simply being anti development.

Comment 9

9) Why would a farmer complain about exporting power? The majority of grain is exported and new export markets are proactively sought constantly. The majority of beef is exported and new export markets sought all the time. Trains and Trucks leave the state carrying exports daily. There have been numerous articles about Senator Baucus and other groups going to Japan and such pursuing ag export opportuntites. If we can export some wind down a powerline to either Canada, or to the west coast, while employing people in Montana and paying taxes in Montana, is this not the exact same concept? It seems to me that the more wind and coal we can "via" powerlines, the more activity we have in our state and the better our economy does.

Comment 10

The agencies will conduct hearings on March 11-13, 2008 to take oral and written comments on the Draft EIS. The hearings will be held at the following locations from 6-9 P.M.:

March 11: Great Falls - Civic Center, Missouri Room, 2 Park Dr. S.
March 12: Cut Bank - Voting Center, 917 East Railroad St.
March 13: Conrad -Norley Hall, 400 N Virginia

Written comments are being accepted on the document during a 45-day comment period which will end on March 31, 2008. Written comments may be submitted to either:

Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

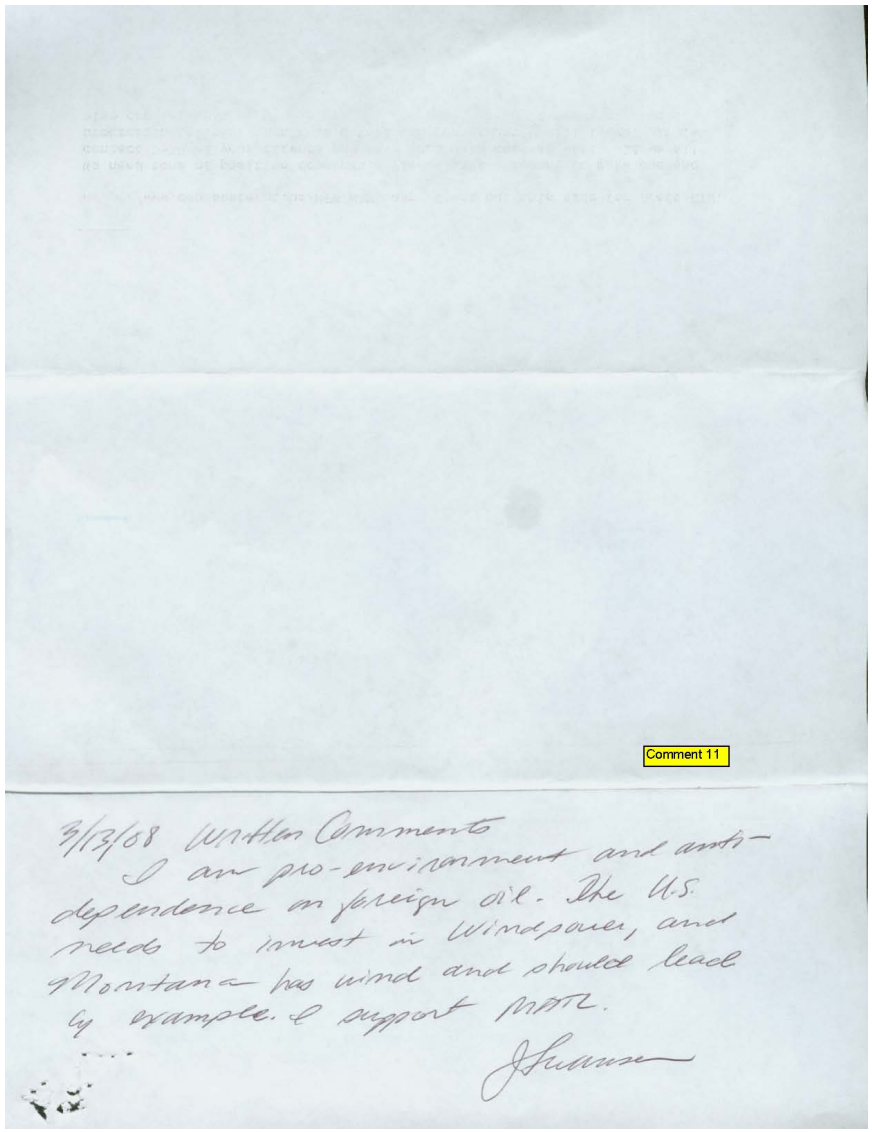
Or e-mailed to: MATL@mt.gov

DEQ and DOE will make reasonable accommodations for persons with disabilities who wish to participate in the hearings. A person in need of accommodation should contact Tom Ring at DEQ at (406) 444-6785 to advise of the needed accommodation no later than March 10, 2008.

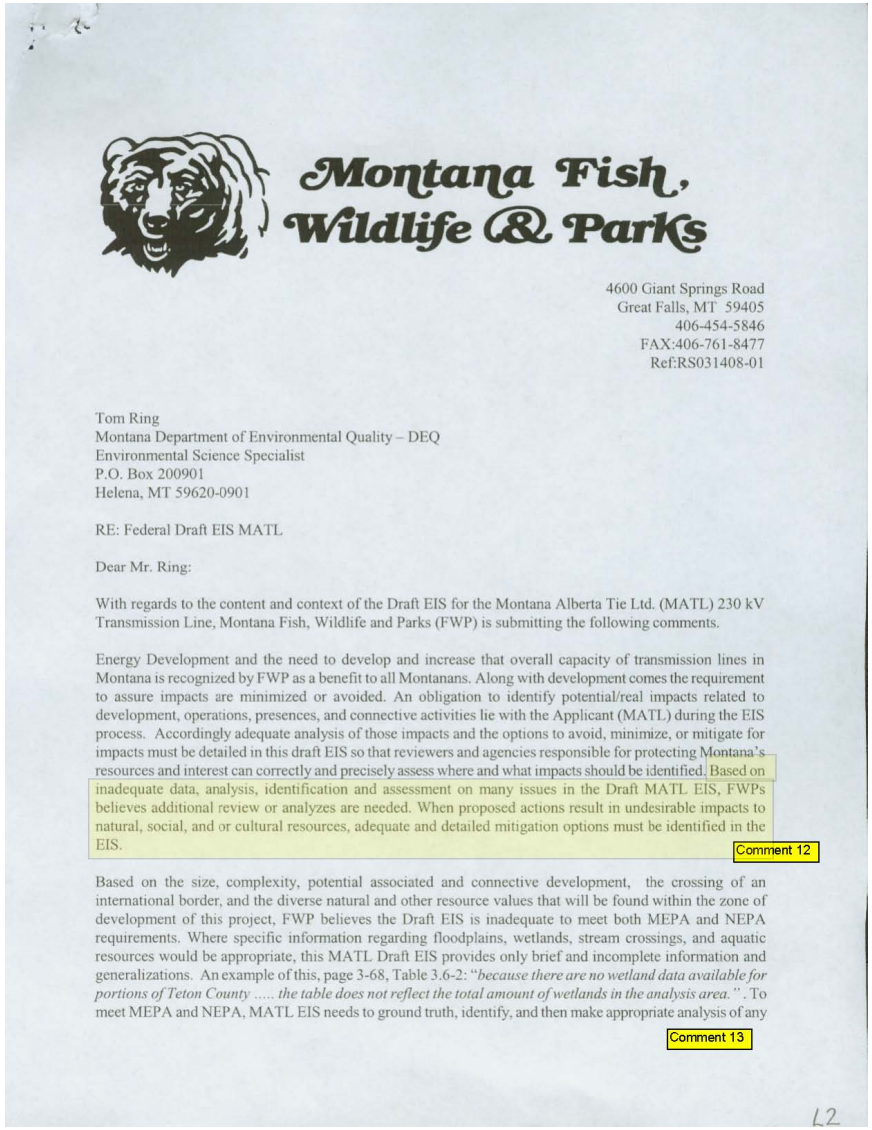
http://www.webmail.3rivers.net/src/read_body.php?mailbox=INBOX&passed_id=3628&... 2/28/2008

Response 9: Your opinion is noted.

Response 10: Comment noted.



Response 11: Comment noted.



Montana Fish, Wildlife & Parks

4600 Giant Springs Road
Great Falls, MT 59405
406-454-5846
FAX:406-761-8477
Ref:RS031408-01

Tom Ring
Montana Department of Environmental Quality – DEQ
Environmental Science Specialist
P.O. Box 200901
Helena, MT 59620-0901

RE: Federal Draft EIS MATL

Dear Mr. Ring:

With regards to the content and context of the Draft EIS for the Montana Alberta Tie Ltd. (MATL) 230 kV Transmission Line, Montana Fish, Wildlife and Parks (FWP) is submitting the following comments.

Energy Development and the need to develop and increase that overall capacity of transmission lines in Montana is recognized by FWP as a benefit to all Montanans. Along with development comes the requirement to assure impacts are minimized or avoided. An obligation to identify potential/real impacts related to development, operations, presences, and connective activities lie with the Applicant (MATL) during the EIS process. Accordingly adequate analysis of those impacts and the options to avoid, minimize, or mitigate for impacts must be detailed in this draft EIS so that reviewers and agencies responsible for protecting Montana's resources and interest can correctly and precisely assess where and what impacts should be identified. Based on inadequate data, analysis, identification and assessment on many issues in the Draft MATL EIS, FWPs believes additional review or analyzes are needed. When proposed actions result in undesirable impacts to natural, social, and or cultural resources, adequate and detailed mitigation options must be identified in the EIS.

Comment 12

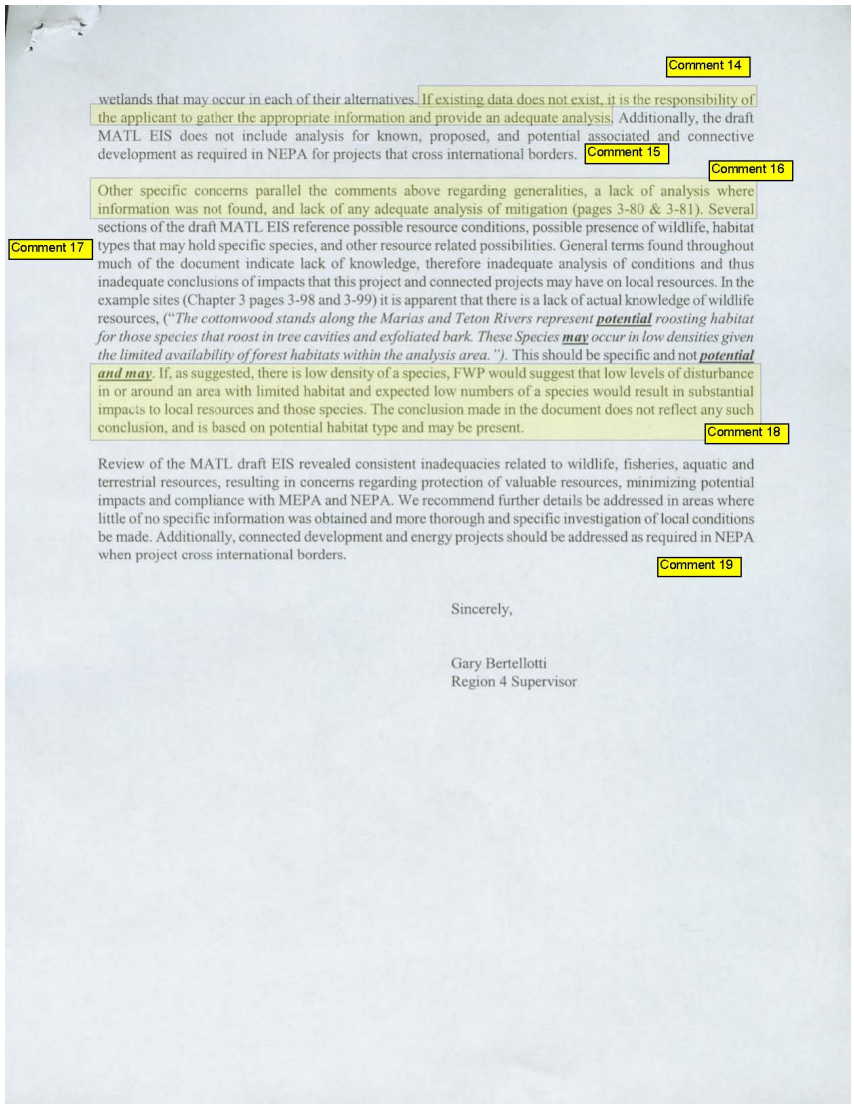
Based on the size, complexity, potential associated and connective development, the crossing of an international border, and the diverse natural and other resource values that will be found within the zone of development of this project, FWP believes the Draft EIS is inadequate to meet both MEPA and NEPA requirements. Where specific information regarding floodplains, wetlands, stream crossings, and aquatic resources would be appropriate, this MATL Draft EIS provides only brief and incomplete information and generalizations. An example of this, page 3-68, Table 3.6-2: "*because there are no wetland data available for portions of Teton County ..... the table does not reflect the total amount of wetlands in the analysis area.*" . To meet MEPA and NEPA, MATL EIS needs to ground truth, identify, and then make appropriate analysis of any

Comment 13

L2

Response 12: Your opinion is noted. Adequate mitigation of significant impacts has been identified.

Response 13: DEQ must comply with MEPA "to the fullest extent possible" and "discuss the impacts of a proposed action in a level of detail that is proportionate to their significance." Streams, wetlands, and aquatic resources would be spanned (except for one angle structure in Black Horse Lake) and would be minimally impacted. Floodplains would also be minimally impacted. Additional wetland impacts in Teton County are described in the Final EIS, Section 3.6. At this time it appears that all wetlands can be spanned, as noted above, or other wise avoided through design. DEQ would require a 50-foot buffer around wetlands (Appendix F). Also see the discussion in Vegetation, Wetlands and Weeds in the Consolidated Responses section. DEQ considered the level of information to be sufficient to make a decision because the detailed on-the-ground surveys to be completed during the construction phase will ensure effective mitigation.



Comment 14

wetlands that may occur in each of their alternatives. If existing data does not exist, it is the responsibility of the applicant to gather the appropriate information and provide an adequate analysis. Additionally, the draft MATL EIS does not include analysis for known, proposed, and potential associated and connective development as required in NEPA for projects that cross international borders.

Comment 15

Comment 16

Other specific concerns parallel the comments above regarding generalities, a lack of analysis where information was not found, and lack of any adequate analysis of mitigation (pages 3-80 & 3-81). Several sections of the draft MATL EIS reference possible resource conditions, possible presence of wildlife, habitat types that may hold specific species, and other resource related possibilities. General terms found throughout much of the document indicate lack of knowledge, therefore inadequate analysis of conditions and thus inadequate conclusions of impacts that this project and connected projects may have on local resources. In the example sites (Chapter 3 pages 3-98 and 3-99) it is apparent that there is a lack of actual knowledge of wildlife resources, ("*The cottonwood stands along the Marias and Teton Rivers represent **potential** roosting habitat for those species that roost in tree cavities and exfoliated bark. These Species **may** occur in low densities given the limited availability of forest habitats within the analysis area.*"). This should be specific and not ***potential and may***. If, as suggested, there is low density of a species, FWP would suggest that low levels of disturbance in or around an area with limited habitat and expected low numbers of a species would result in substantial impacts to local resources and those species. The conclusion made in the document does not reflect any such conclusion, and is based on potential habitat type and may be present.

Comment 17

Comment 18

Review of the MATL draft EIS revealed consistent inadequacies related to wildlife, fisheries, aquatic and terrestrial resources, resulting in concerns regarding protection of valuable resources, minimizing potential impacts and compliance with MEPA and NEPA. We recommend further details be addressed in areas where little of no specific information was obtained and more thorough and specific investigation of local conditions be made. Additionally, connected development and energy projects should be addressed as required in NEPA when project cross international borders.

Comment 19

Sincerely,

Gary Bertellotti
Region 4 Supervisor

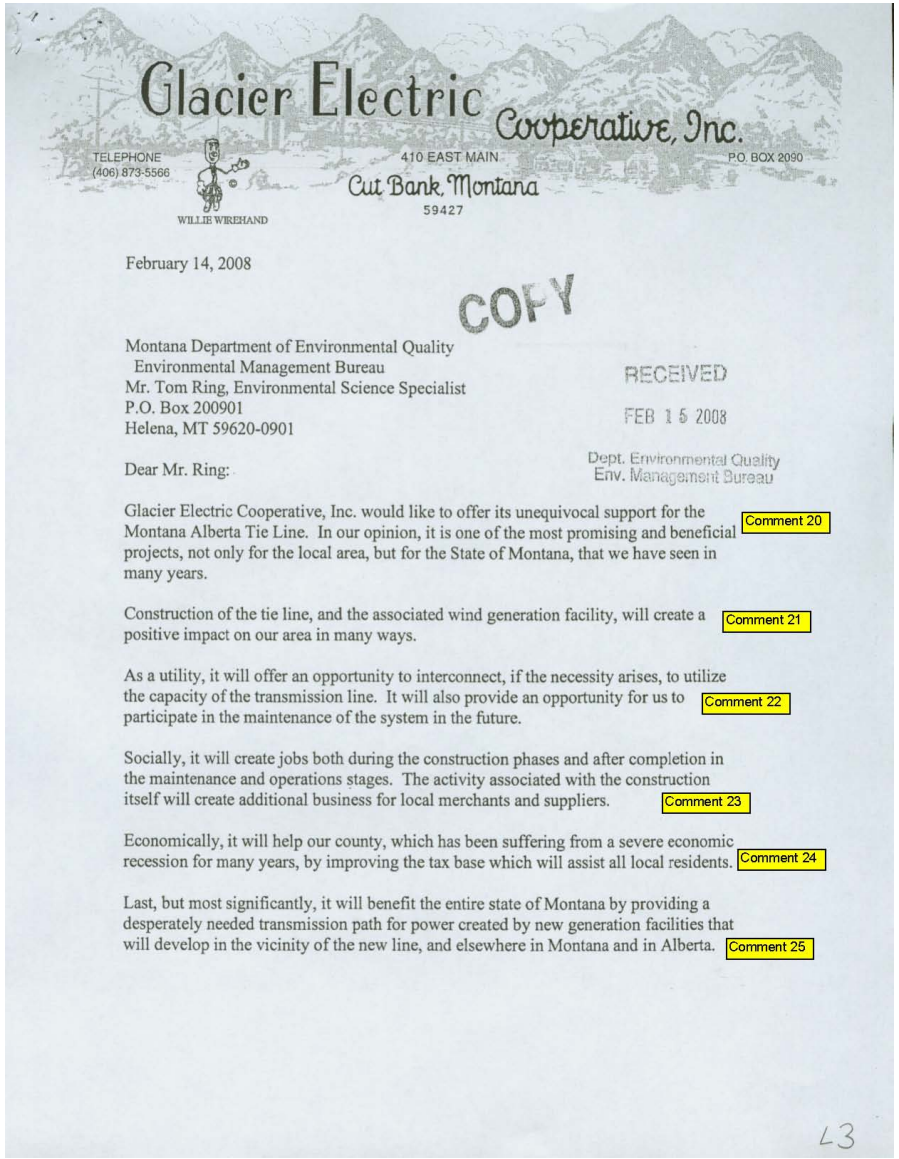
Response 14: The EIS has been revised to include additional information pertaining to Teton County wetlands in Section 3.6.

Response 15 and 16: See the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

Response 17: The information available and the surveys completed were adequate to complete successful impact analysis. See the discussions of Legal and Regulatory Issues and Avian and Wildlife Issues in the Consolidated Responses section.

Response 18: Unless the entire habitat area were disturbed, low levels of disturbance should not impact a species with limited habitat. The analysis in the EIS does not indicate that the entire habitat area for any species would be disturbed due to the Project. Therefore, there should not be substantial impacts to any species. The discussion of impacts in Section 3.8.3 acknowledges that there might be impacts to wildlife due to disturbance during construction, but that the impacts would be short-term and concentrated within the action area. Also, at crossings of the Marias and Teton rivers the transmission line would span the river, so the impact to bat habitat and bats at river crossings would be minor. A few riparian cottonwood trees may need to be cleared or topped along the south shore of the Teton River Crossing Local Routing Option. See the discussions of Legal and Regulatory Issues and Avian and Wildlife Issues in the Consolidated Responses section. The analyses of direct, indirect, and cumulative impacts were complete and adequate, and the determination that populations within the area would not be negatively impacted was supported within the analyses.

Response 19: Comment noted. Also see responses to comments 12 through 18. On April 30, 2008, an on-ground survey for sharp-tailed grouse leks was conducted by AMEC-Helena for MATL. On May 2, 2008, an aerial survey was conducted by AMEC. No sharp-tailed grouse were observed during the April 30th survey, but two sharp-tailed grouse were seen during the May 2nd survey. No leks were observed, and AMEC concluded that the sighting of the lone birds did not necessarily imply grouse lek activity. Other reasonably foreseeable energy projects in the regions are addressed in the cumulative impacts analysis in Section 4 of the EIS.



Glacier Electric Cooperative, Inc.

TELEPHONE (406) 873-5566

410 EAST MAIN
Cut Bank, Montana
59427

P.O. BOX 2090

WILLIE WIREHAND

February 14, 2008

COPY

Montana Department of Environmental Quality
Environmental Management Bureau
Mr. Tom Ring, Environmental Science Specialist
P.O. Box 200901
Helena, MT 59620-0901

RECEIVED
FEB 15 2008
Dept. Environmental Quality
Env. Management Bureau

Dear Mr. Ring:

Glacier Electric Cooperative, Inc. would like to offer its unequivocal support for the Montana Alberta Tie Line. In our opinion, it is one of the most promising and beneficial projects, not only for the local area, but for the State of Montana, that we have seen in many years. Comment 20

Construction of the tie line, and the associated wind generation facility, will create a positive impact on our area in many ways. Comment 21

As a utility, it will offer an opportunity to interconnect, if the necessity arises, to utilize the capacity of the transmission line. It will also provide an opportunity for us to participate in the maintenance of the system in the future. Comment 22

Socially, it will create jobs both during the construction phases and after completion in the maintenance and operations stages. The activity associated with the construction itself will create additional business for local merchants and suppliers. Comment 23

Economically, it will help our county, which has been suffering from a severe economic recession for many years, by improving the tax base which will assist all local residents. Comment 24

Last, but most significantly, it will benefit the entire state of Montana by providing a desperately needed transmission path for power created by new generation facilities that will develop in the vicinity of the new line, and elsewhere in Montana and in Alberta. Comment 25

43

Response 20 and 21: Comment noted.

Response 22: Thank you for your comment

Response 23 to 25: See Socioeconomic Impact Issues in the Consolidated Responses section.

Mr. Tom Ring
page 2
February 14, 2008

Comment 26

We congratulate the Montana Alberta Tie Line group on their innovative and progressive approach and wish them every success with the construction and operation of the transmission line.

Sincerely,

Jasen R. Bronec
General Manager

Hallsten, Greg

From: Noel Duram [nrduram@hotmail.com]
Posted At: Saturday, February 16, 2008 3:17 AM
Conversation: MATL line comments
Posted To: MATL
Subject: MATL line comments

To whom it may concern;

Comment 27

I am a resident and home owner in Glacier County north of Cut Bank. I believe this proposed line will be a very beneficial asset to all of North Central Montana and especially beneficial to the economies of Glacier and Pondera Counties. The planned line allows further development of wind energy to further supplement all of Montana as well as the both the US and Canadian energy needs. I am in full support of the planned transmission line.

Thank you for your time.

Noel R. Duram
148 Hwy 213
Cut Bank, MT 59427

Climb to the top of the charts! Play the word scramble challenge with star power. Play now!

Response 26: Comment noted.

Response 27: Comment noted.



Hallsten, Greg

From: Jim Anderson [wings@3rivers.net]
Posted At: Saturday, February 16, 2008 10:20 AM
Conversation: commment
Posted To: MATL

Subject: commment

Comment 28

Hi there,

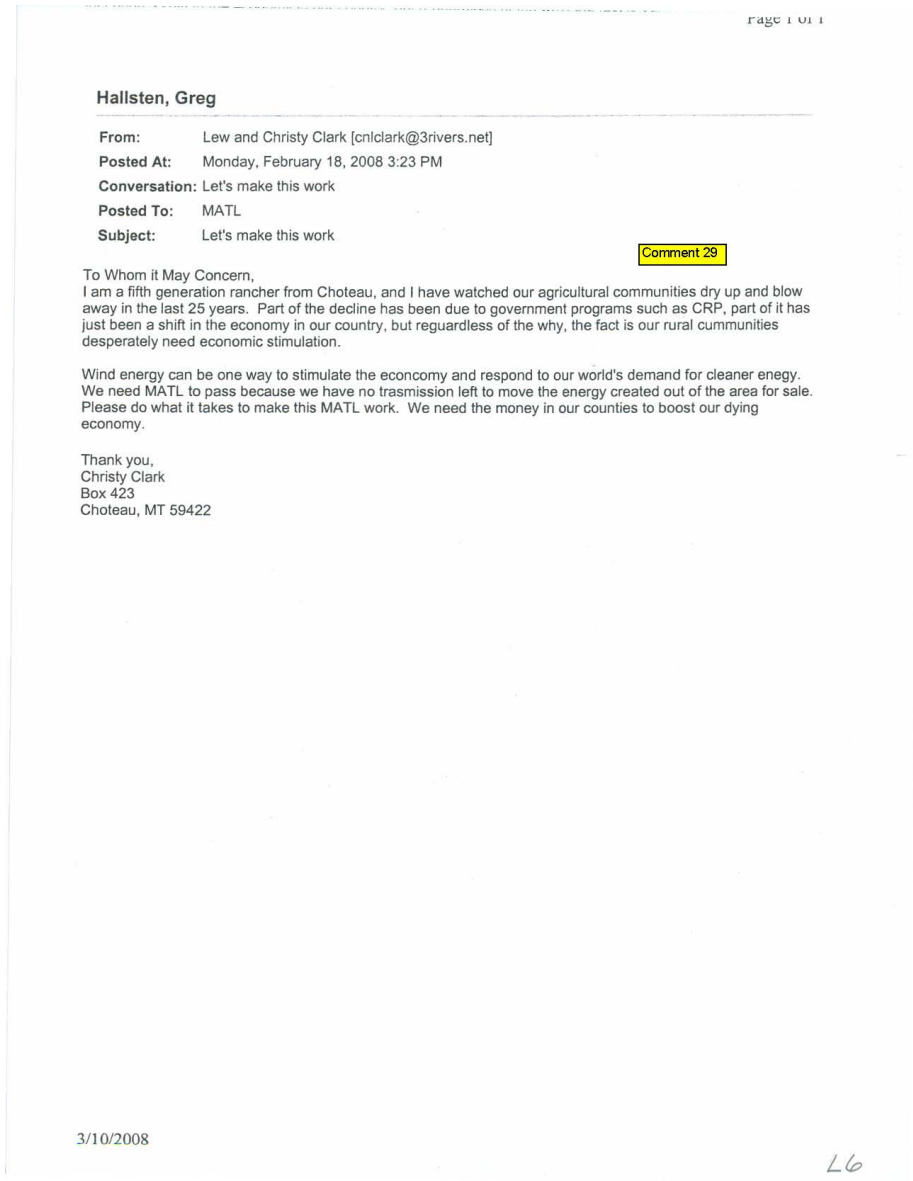
I am a businessman in Choteau. This project would be good for our area and Montana.

Jim Anderson
Choteau

1

45

Response 28: Comment noted.



Page 1 of 1

Hallsten, Greg

From: Lew and Christy Clark [cnlclark@3rivers.net]
Posted At: Monday, February 18, 2008 3:23 PM
Conversation: Let's make this work
Posted To: MATL
Subject: Let's make this work

Comment 29

To Whom it May Concern,
I am a fifth generation rancher from Choteau, and I have watched our agricultural communities dry up and blow away in the last 25 years. Part of the decline has been due to government programs such as CRP, part of it has just been a shift in the economy in our country, but reguardless of the why, the fact is our rural cummunities desperately need economic stimulation.

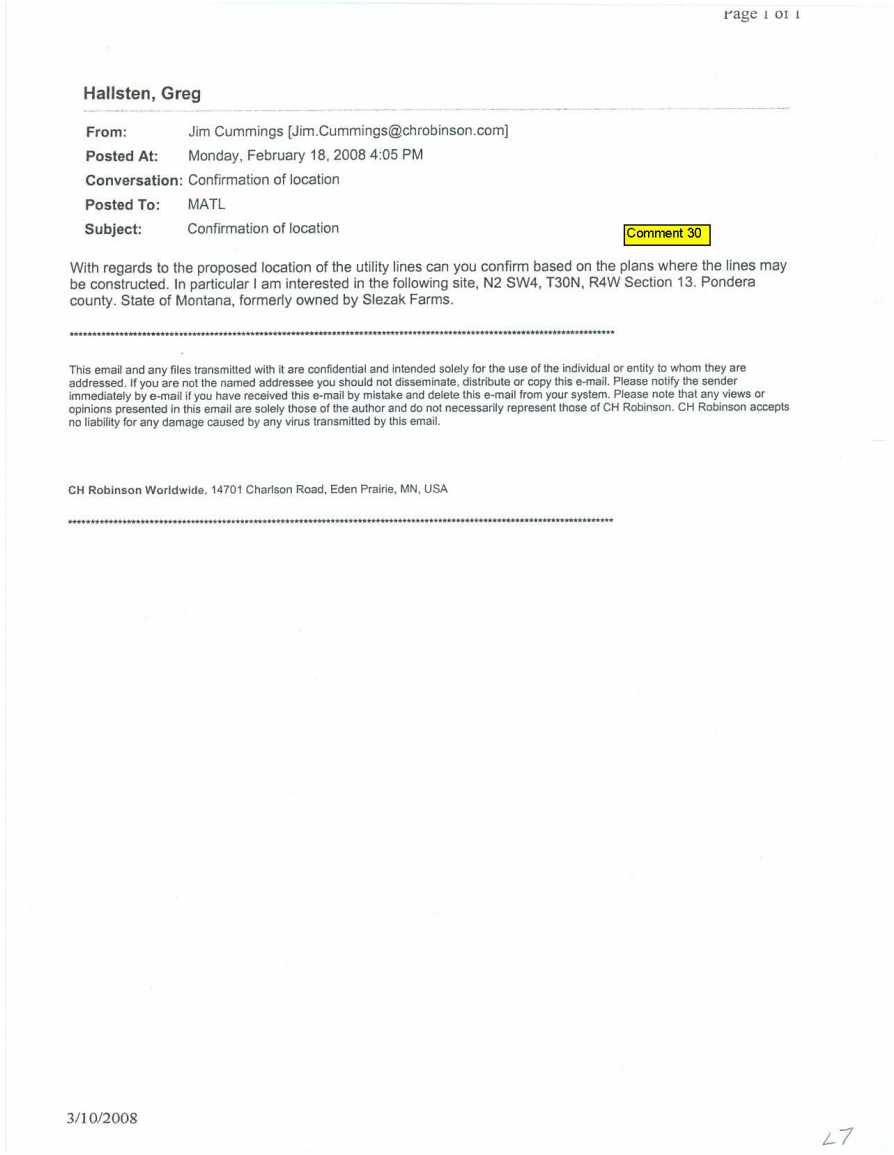
Wind energy can be one way to stimulate the econcomy and respond to our world's demand for cleaner enegy. We need MATL to pass because we have no trasmission left to move the energy created out of the area for sale. Please do what it takes to make this MATL work. We need the money in our counties to boost our dying economy.

Thank you,
Christy Clark
Box 423
Choteau, MT 59422

3/10/2008

L6

Response 29: Your comment regarding economic stimulation is noted.



Page 1 of 1

Hallsten, Greg

From: Jim Cummings [Jim.Cummings@chrobinson.com]
Posted At: Monday, February 18, 2008 4:05 PM
Conversation: Confirmation of location
Posted To: MATL
Subject: Confirmation of location

Comment 30

With regards to the proposed location of the utility lines can you confirm based on the plans where the lines may be constructed. In particular I am interested in the following site, N2 SW4, T30N, R4W Section 13. Pondera county. State of Montana, formerly owned by Slezak Farms.

****

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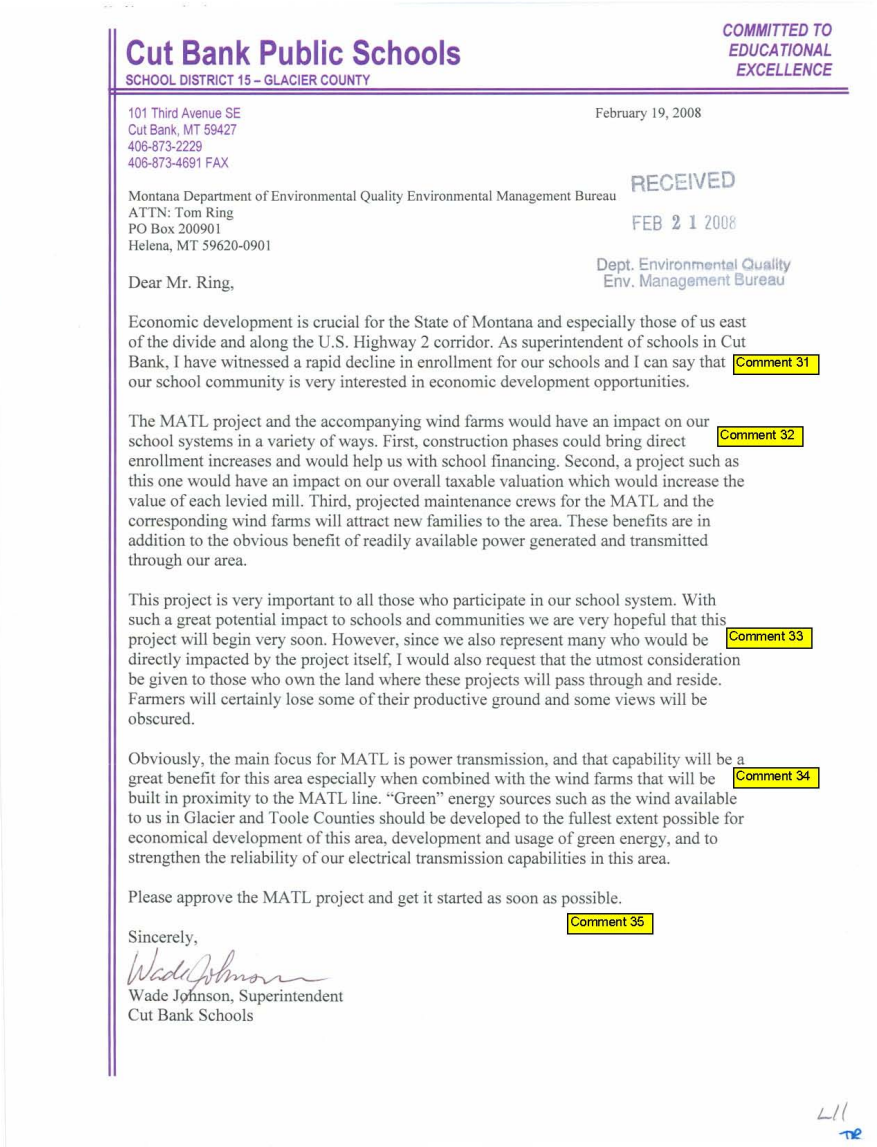
CH Robinson Worldwide, 14701 Charlson Road, Eden Prairie, MN, USA

****

3/10/2008

47

Response 30: Information on the potential location of the line in Pondera County has been sent to the commenter.



Cut Bank Public Schools
SCHOOL DISTRICT 15 – GLACIER COUNTY

COMMITTED TO EDUCATIONAL EXCELLENCE

101 Third Avenue SE
Cut Bank, MT 59427
406-873-2229
406-873-4691 FAX

February 19, 2008

Montana Department of Environmental Quality Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

RECEIVED
FEB 21 2008
Dept. Environmental Quality
Env. Management Bureau

Dear Mr. Ring,

Economic development is crucial for the State of Montana and especially those of us east of the divide and along the U.S. Highway 2 corridor. As superintendent of schools in Cut Bank, I have witnessed a rapid decline in enrollment for our schools and I can say that our school community is very interested in economic development opportunities. Comment 31

The MATL project and the accompanying wind farms would have an impact on our school systems in a variety of ways. First, construction phases could bring direct enrollment increases and would help us with school financing. Second, a project such as this one would have an impact on our overall taxable valuation which would increase the value of each levied mill. Third, projected maintenance crews for the MATL and the corresponding wind farms will attract new families to the area. These benefits are in addition to the obvious benefit of readily available power generated and transmitted through our area. Comment 32

This project is very important to all those who participate in our school system. With such a great potential impact to schools and communities we are very hopeful that this project will begin very soon. However, since we also represent many who would be directly impacted by the project itself, I would also request that the utmost consideration be given to those who own the land where these projects will pass through and reside. Farmers will certainly lose some of their productive ground and some views will be obscured. Comment 33

Obviously, the main focus for MATL is power transmission, and that capability will be a great benefit for this area especially when combined with the wind farms that will be built in proximity to the MATL line. "Green" energy sources such as the wind available to us in Glacier and Toole Counties should be developed to the fullest extent possible for economical development of this area, development and usage of green energy, and to strengthen the reliability of our electrical transmission capabilities in this area. Comment 34

Please approve the MATL project and get it started as soon as possible. Comment 35

Sincerely,

Wade Johnson, Superintendent
Cut Bank Schools

LII
TR

Response 31: Your perspective on school enrollment trends has been noted.

Response 32: Socioeconomic impacts and benefits of the proposed MATL line are discussed in Section 3.13. Socioeconomic impacts of potential wind farms are discussed in Section 4.14. Also see the discussion of Socioeconomic Issues in the Consolidated Responses section.

Response 33: Your comments regarding start of construction and your regard for those who own the land are noted. Also see the discussion of Farming Issues and Visual Issues in the Consolidated Responses section.

Response 34 and 35: Your comments regarding area benefits, green energy resources, reliability of the transmission grid, and project schedule are noted.

RECEIVED

FEB 20 2008

Dept. Environmental Quality
Env. Management Bureau

FEB. 14, 2008

DEAR MR. RING;

I WOULD VOTE A "NO ACTION" AND NO CONSTRUCTION OF THE MATL LINE.
AS STATED ON PAGE S-3 BENEFITS ADMITTED BY THE APPLICANT AS FOLLOWS Comment 36

EIS STATES "THE PRIMARY PURPOSE OF WHICH IS TO FINANCIALLY BENEFIT THE OWNER/OPERATORS."

I WONDER IF THIS IS BENEFITING THE CITIZENS OF MONTANA AS A WHOLE ? PERHAPS INSTEAD IT ONLY ENRICHES A FEW PRIVATE INTERESTS. Comment 37

EIS STATES "ADDITIONAL CAPACITY IS NOT NEEDED TO PROVIDE POWER TO MONTANA CUSTOMERS"

IT IS ADMITTADLY NOT NEEDED . Comment 38

EIS STATES "ADDITIONAL TRANSMISSION CAPACITY IS NOT NEEDED TO SERVE MONTANA CUSTOMERS, BUT IS ESSENTIAL FOR THE VIABILITY OF NEW GENERATION ENTERPRISES" Comment 39

IN OTHER WORDS THE CITIZENS OF MONTANA DO NOT NEED IT BUT A FEW PRIVATE FOR PROFIT ELECTRICAL COMPANIES MAY.

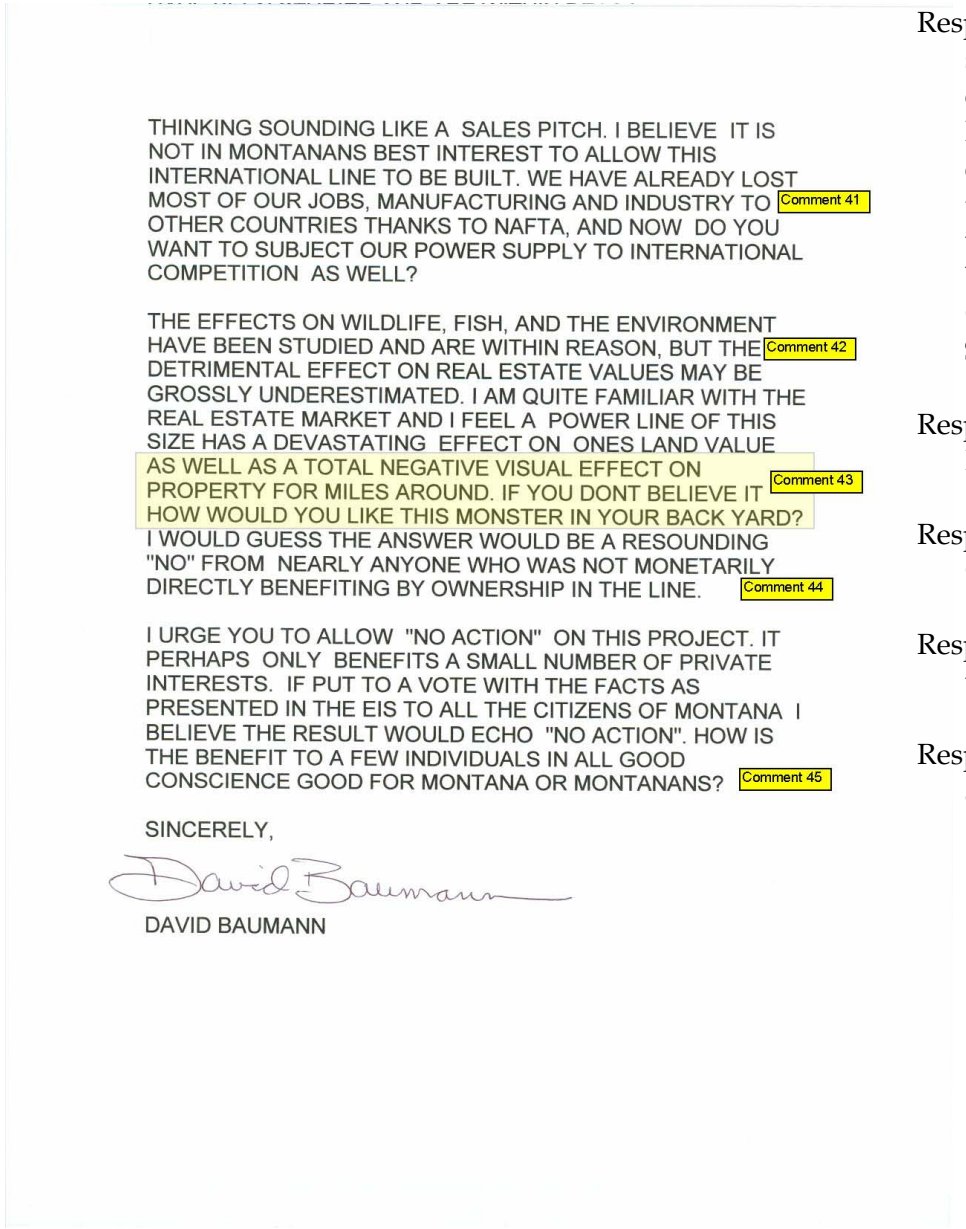
ALLOWING THIS LINE TO GO IN MIGHT ONLY HURT MONTANA RATEPAYERS AND IS NOT IN THE MONTANA RESIDENTS BEST INTEREST. IT WOULD ALLOW NEW POWER SOURCES TO BE EXPORTED OUT OF THE COUNTRY TO HIGHER PAYING MARKETS , AND MAYBE EXISTING POWER AS WELL. THE POWER WOULD FLOW TO THE HIGHEST PRICE MARKET AND FORCE MONTANANS TO COMPETE AND PAY A HIGHER COMPETITIVE PRICE FOR THEIR POWER. VERY SIMILAR TO THE HIGH GASOLINE PRICES WE ARE FORCED TO PAY COMPETING WITH OTHER RAPIDLY DEVELOPING COUNTRIES. LOWER POWER COSTS FROM THIS LINE ARE ONLY WISHFUL Comment 40

L10

Response 36: Your comment regarding no action is noted.

Response 37: See Section 3.13 and the discussion of Economic Impact Issues in the Consolidated Responses section.

Response 38 to 40: The need for the line is addressed in Sections 1.2 and 3.17. Also see the discussion of Economic Issues in the Consolidated Responses section.



THINKING SOUNDING LIKE A SALES PITCH. I BELIEVE IT IS NOT IN MONTANANS BEST INTEREST TO ALLOW THIS INTERNATIONAL LINE TO BE BUILT. WE HAVE ALREADY LOST MOST OF OUR JOBS, MANUFACTURING AND INDUSTRY TO OTHER COUNTRIES THANKS TO NAFTA, AND NOW DO YOU WANT TO SUBJECT OUR POWER SUPPLY TO INTERNATIONAL COMPETITION AS WELL?

THE EFFECTS ON WILDLIFE, FISH, AND THE ENVIRONMENT HAVE BEEN STUDIED AND ARE WITHIN REASON, BUT THE DETRIMENTAL EFFECT ON REAL ESTATE VALUES MAY BE GROSSLY UNDERESTIMATED. I AM QUITE FAMILIAR WITH THE REAL ESTATE MARKET AND I FEEL A POWER LINE OF THIS SIZE HAS A DEVASTATING EFFECT ON ONES LAND VALUE AS WELL AS A TOTAL NEGATIVE VISUAL EFFECT ON PROPERTY FOR MILES AROUND. IF YOU DONT BELIEVE IT HOW WOULD YOU LIKE THIS MONSTER IN YOUR BACK YARD? I WOULD GUESS THE ANSWER WOULD BE A RESOUNDING "NO" FROM NEARLY ANYONE WHO WAS NOT MONETARILY DIRECTLY BENEFITING BY OWNERSHIP IN THE LINE.

I URGE YOU TO ALLOW "NO ACTION" ON THIS PROJECT. IT PERHAPS ONLY BENEFITS A SMALL NUMBER OF PRIVATE INTERESTS. IF PUT TO A VOTE WITH THE FACTS AS PRESENTED IN THE EIS TO ALL THE CITIZENS OF MONTANA I BELIEVE THE RESULT WOULD ECHO "NO ACTION". HOW IS THE BENEFIT TO A FEW INDIVIDUALS IN ALL GOOD CONSCIENCE GOOD FOR MONTANA OR MONTANANS?

SINCERELY,

David Baumann

DAVID BAUMANN

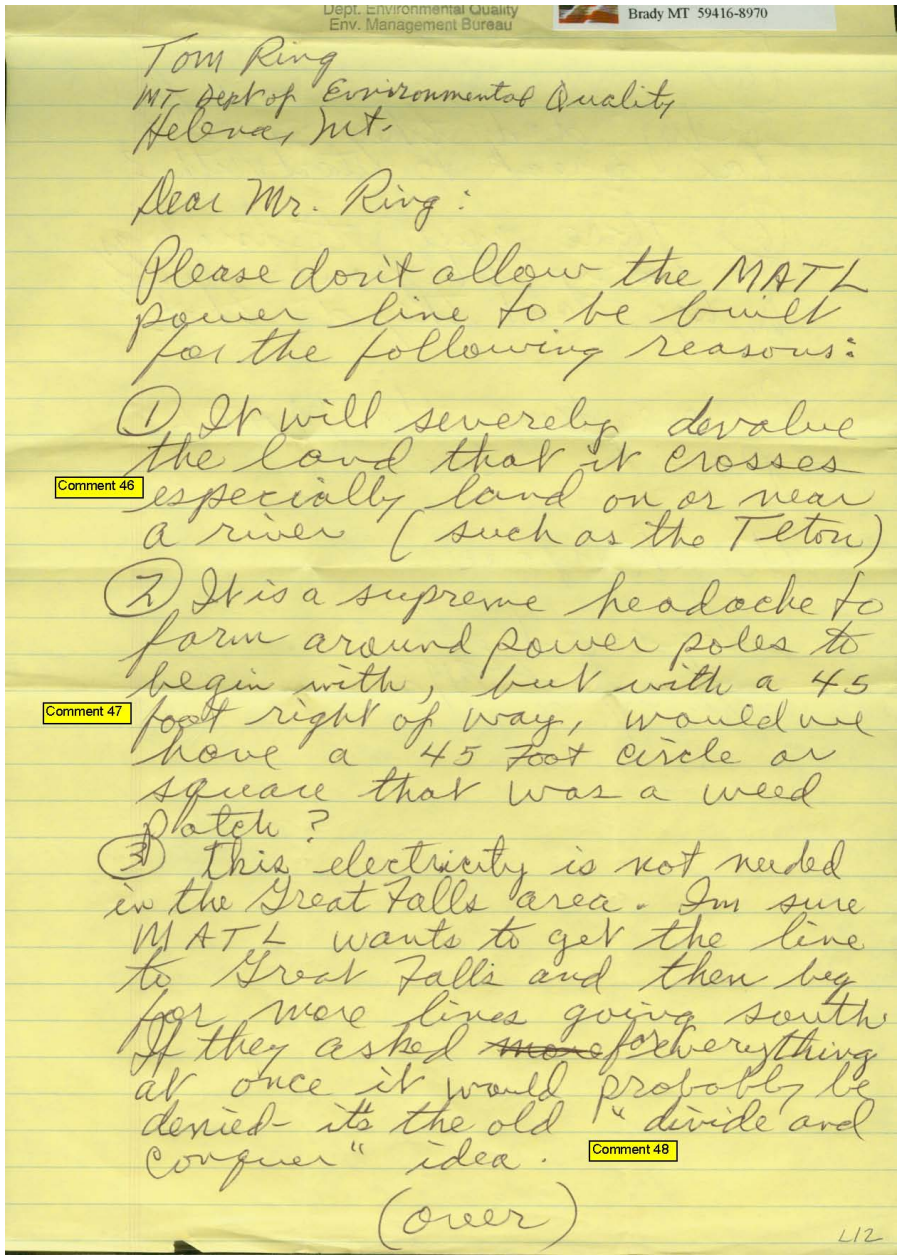
Response 41: The U.S. power supply, including power supplied in Montana, already faces some international competition from those customers that live in Canada and Mexico that are on the U.S. Western grid. The MATL line could increase competition for Montana generated power up to the rated capacity of the line going south to north which is 300 MW and a portion of this space would likely be used by generation from new Montana sources. Currently, Montana generators export about 1,400 MW. See Section 3.17.1 in the EIS.

Response 42: See the discussion of Socioeconomic Impacts Issues in the Consolidated Responses section

Response 43: See the discussion of Visual Issues in the Consolidated Responses section.

Response 44: Thank you for your comments pertaining to visual impacts.

Response 45: Comments pertaining to benefits of the project are noted.



Dept. Environmental Quality
Env. Management Bureau
Brady MT 59416-8970

Tom Ring
MT Dept of Environmental Quality
Helena, MT.

Dear Mr. Ring:

Please don't allow the MATL power line to be built for the following reasons:

(1) It will severely devalue the land that it crosses especially land on or near a river (such as the Teton)

(2) It is a supreme headache to farm around power poles to begin with, but with a 45 foot right of way, would we have a 45 foot circle or square that was a weed patch?

(3) This electricity is not needed in the Great Falls area. Im sure MATL wants to get the line to Great Falls and then beg for more lines going south If they asked ~~more~~ for everything at once it would probably be denied- its the old "divide and conquer" idea.

(over)

1/12

Comment 46

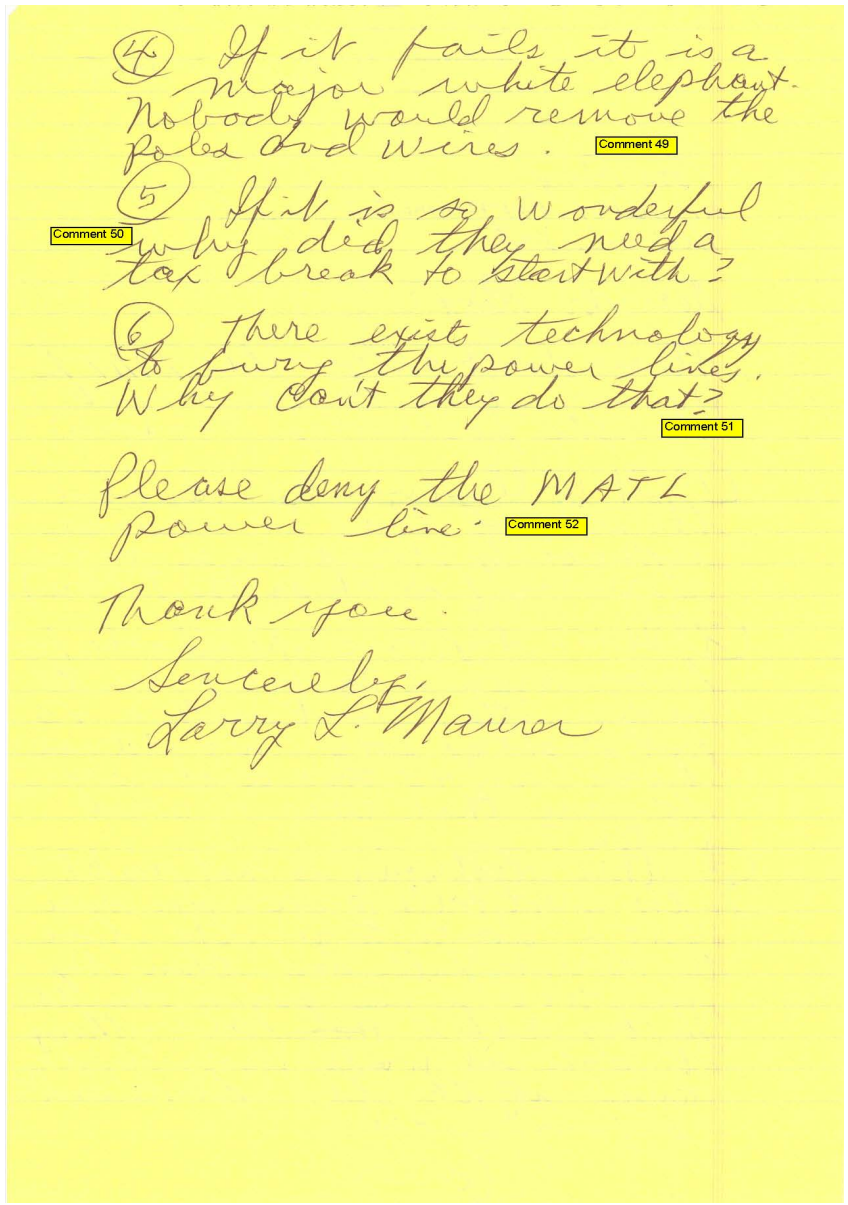
Comment 47

Comment 48

Response 46: See the discussion of Socioeconomic Impact Issues in the Consolidated Responses section and the EIS, Section 3.13.3.2, "Effects on Property Values."

Response 47: MATL has changed its proposal to include a 105-foot right-of-way. Appendix N, Figure 1, illustrates the typical amount of land taken out of production that could be more susceptible to weed infestation if control measures are not undertaken. Also, see the discussion of Farming Issues and Vegetation, Wetland and Weed Issues in the Consolidated Responses section.

Response 48: The need for the line is addressed in Sections 1.2 and 3.17.



Response 49: The agencies have noted your comment regarding the fate of the line should it not be a success. After the line is operational, it is expected to be an asset with value. In the hypothetical event that the project owners were to file for bankruptcy, the agencies expect that some other entity would acquire this asset and continue to operate it.

Response 50: See the discussion of Tax Issues in the Consolidated Responses section.

Response 51: Discussions of undergrounding the line are in Section 2.8. Also see Line Issues in the Consolidated Responses section.

Response 52: Comment noted.

Hallsten, Greg

From: Lorette Carter [shbcdc@3rivers.net]
Posted At: Tuesday, March 04, 2008 10:47 AM
Conversation: Support of the MATL line
Posted To: MATL
Subject: Support of the MATL line

Committee Members:

Comment 53

I am writing on behalf of the community of Shelby and Office of Economic Development to support the efforts to construct the Montana Alberta Transmission Tie Line (MATL). Shelby, Toole County and Northern Montana are in a unique position of incredible economic benefit in the potential of the MATL line. With construction of the wind farms to begin soon, the approval of the line will create an invaluable source of electric transmission, incredible economic opportunity and reduction of taxes to those in the region.

Our rural Montana region continually struggles with decades of drought, a depressed oil and gas industry and other economic factors beyond our control. The key to sustainability and development of a solid economic base is diversity and access to our available resources. Wind generation is an abundant, renewable resource that can provide a tremendous economic boost to our area in job creation, additional business and secondary services, reduction in taxes and wealth within our communities.

Comment 54

MATL officials have been diligent in following all guidelines, garnering the commitment of landowners and assuring communities of their sincere commitment to the benefit and wellbeing of the community now and for generations to come. I sincerely hope you will consider the wishes of those who live, work and raise our families in our region. Outside interests have many voices, but the voice of those who live here need be heard loud and clear.

Comment 55

Please support the efforts to bring new, clean industry to rural Montana. Help us keep our communities alive for our children and those that will come after us.

Comment 56

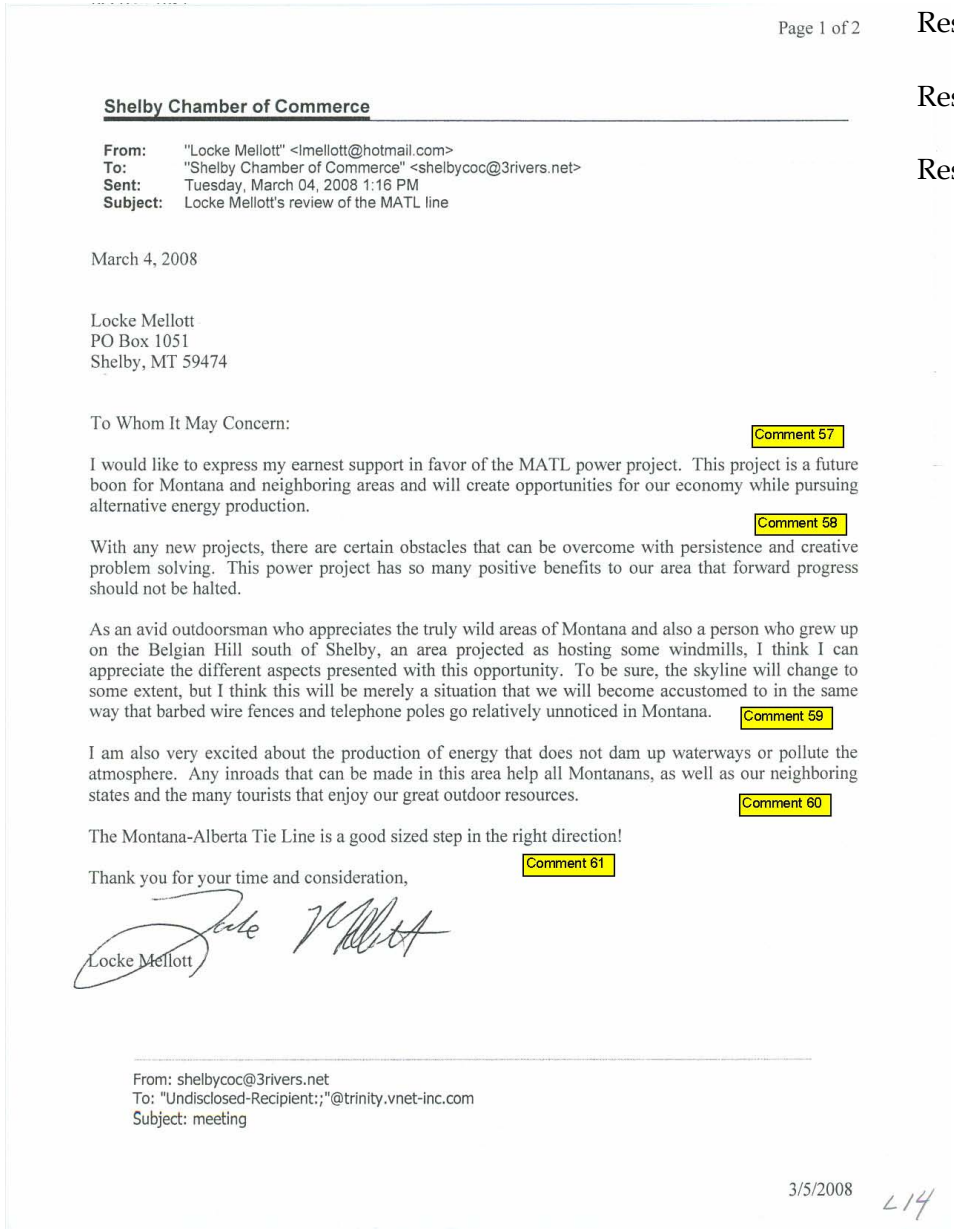
Sincerely,

Lorette Carter
City of Shelby
112 1st St. So.
Shelby, MT 59474
(406) 424-8799
Fax: (406) 424-8413
shbcdc@3rivers.net

3/10/2008

L13

Response 53 to 56: Your comments are noted.



Page 1 of 2

Shelby Chamber of Commerce

From: "Locke Mellott" <lmellott@hotmail.com>
To: "Shelby Chamber of Commerce" <shelbycoc@3rivers.net>
Sent: Tuesday, March 04, 2008 1:16 PM
Subject: Locke Mellott's review of the MATL line

March 4, 2008

Locke Mellott
PO Box 1051
Shelby, MT 59474

To Whom It May Concern:

Comment 57

I would like to express my earnest support in favor of the MATL power project. This project is a future boon for Montana and neighboring areas and will create opportunities for our economy while pursuing alternative energy production.

Comment 58

With any new projects, there are certain obstacles that can be overcome with persistence and creative problem solving. This power project has so many positive benefits to our area that forward progress should not be halted.

As an avid outdoorsman who appreciates the truly wild areas of Montana and also a person who grew up on the Belgian Hill south of Shelby, an area projected as hosting some windmills, I think I can appreciate the different aspects presented with this opportunity. To be sure, the skyline will change to some extent, but I think this will be merely a situation that we will become accustomed to in the same way that barbed wire fences and telephone poles go relatively unnoticed in Montana.

Comment 59

I am also very excited about the production of energy that does not dam up waterways or pollute the atmosphere. Any inroads that can be made in this area help all Montanans, as well as our neighboring states and the many tourists that enjoy our great outdoor resources.

Comment 60

The Montana-Alberta Tie Line is a good sized step in the right direction!

Comment 61

Thank you for your time and consideration,

Locke Mellott

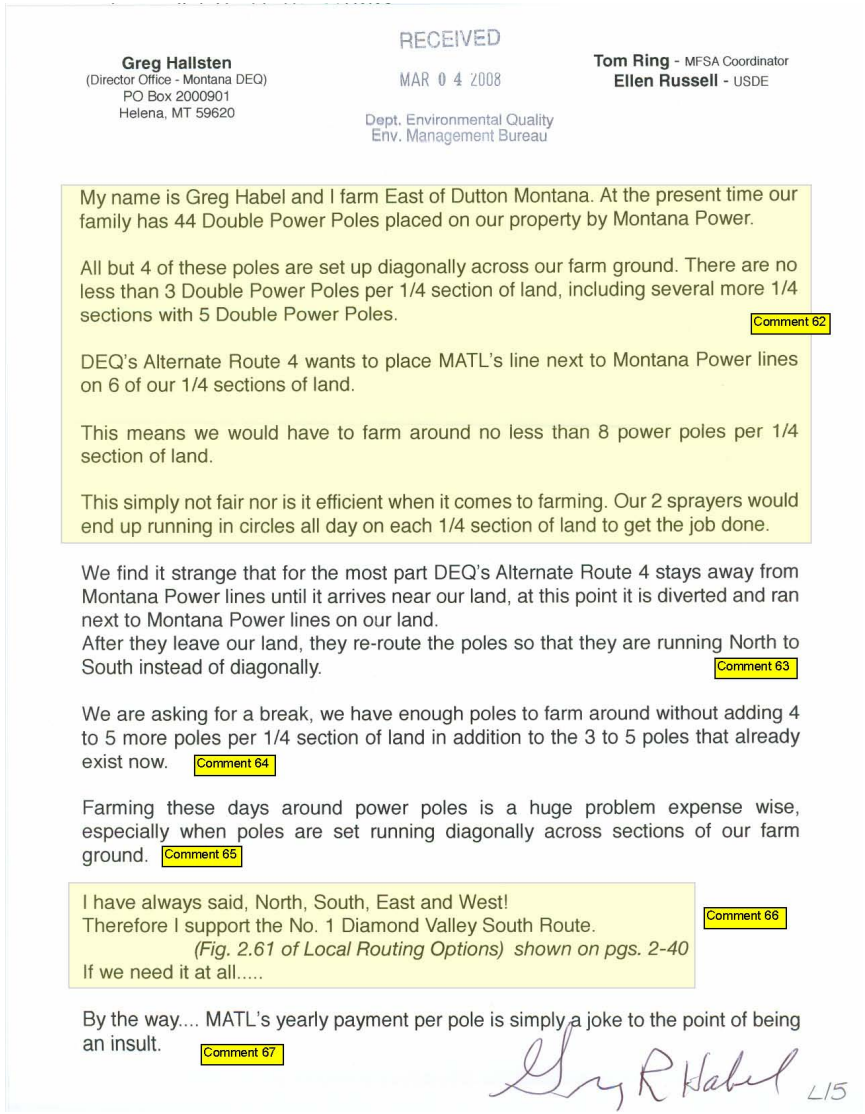
From: shelbycoc@3rivers.net
To: "Undisclosed-Recipient:;"@trinity.vnet-inc.com
Subject: meeting

3/5/2008 L14

Response 57 and 58: Thank you for your comment.

Response 59: Comment noted.

Response 60 and 61: Thank you for your comments.



Greg Hallsten
(Director Office - Montana DEQ)
PO Box 2000901
Helena, MT 59620

RECEIVED
MAR 0 4 2008
Dept. Environmental Quality
Env. Management Bureau

Tom Ring - MFSA Coordinator
Ellen Russell - USDE

My name is Greg Habel and I farm East of Dutton Montana. At the present time our family has 44 Double Power Poles placed on our property by Montana Power.

All but 4 of these poles are set up diagonally across our farm ground. There are no less than 3 Double Power Poles per 1/4 section of land, including several more 1/4 sections with 5 Double Power Poles. Comment 62

DEQ's Alternate Route 4 wants to place MATL's line next to Montana Power lines on 6 of our 1/4 sections of land.

This means we would have to farm around no less than 8 power poles per 1/4 section of land.

This simply not fair nor is it efficient when it comes to farming. Our 2 sprayers would end up running in circles all day on each 1/4 section of land to get the job done.

We find it strange that for the most part DEQ's Alternate Route 4 stays away from Montana Power lines until it arrives near our land, at this point it is diverted and ran next to Montana Power lines on our land.
After they leave our land, they re-route the poles so that they are running North to South instead of diagonally. Comment 63

We are asking for a break, we have enough poles to farm around without adding 4 to 5 more poles per 1/4 section of land in addition to the 3 to 5 poles that already exist now. Comment 64

Farming these days around power poles is a huge problem expense wise, especially when poles are set running diagonally across sections of our farm ground. Comment 65

I have always said, North, South, East and West!
Therefore I support the No. 1 Diamond Valley South Route.
(Fig. 2.61 of Local Routing Options) shown on pgs. 2-40
If we need it at all.....
Comment 66

By the way.... MATL's yearly payment per pole is simply a joke to the point of being an insult. Comment 67

Greg R Habel 2/5

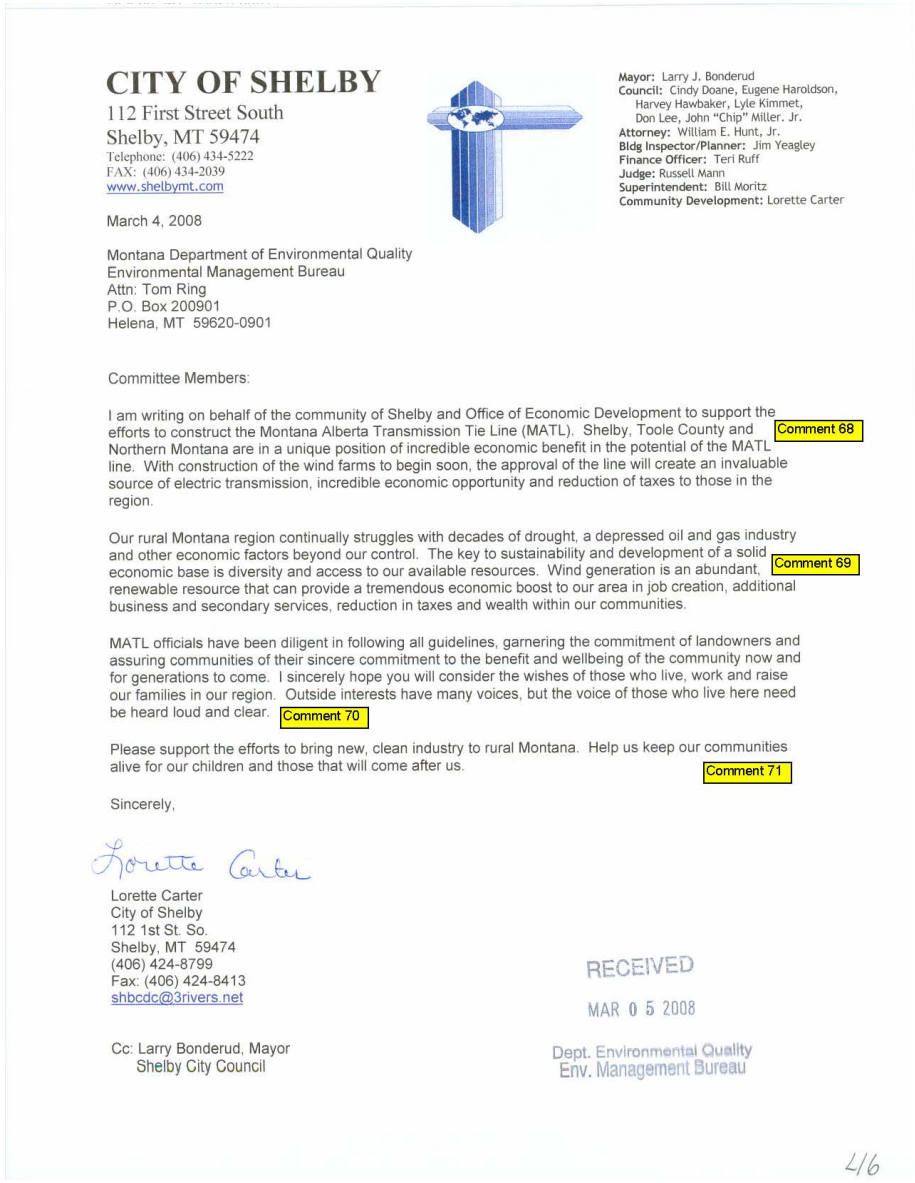
Response 62 and 63: See Section 2.6.1 in the EIS. The Alternative 4 portion through the Diamond Valley did not meet with local acceptance and is no longer being carried forward as a viable option. See the revisions to the Diamond Valley local routing option in Section 2.6.1.

Response 64: Your comment is noted. In the Diamond Valley area several alternatives were identified that would limit the amount of farmland crossed on a diagonal. See Figure 2.6-2.

Response 65: The agencies acknowledge the increased cost to farm around structures. Farming cost estimates have been updated in Section 3.13.3.2.

Response 66: See Figure 2.6-2 of the Final EIS.

Response 67: The average per-structure payment has been updated to $33.90. Also see Section 2.3 concerning the alternative dispute resolution process.



CITY OF SHELBY
112 First Street South
Shelby, MT 59474
Telephone: (406) 434-5222
FAX: (406) 434-2039
www.shelbymt.com

Mayor: Larry J. Bonderud
Council: Cindy Doane, Eugene Haroldson, Harvey Hawbaker, Lyle Kimmet, Don Lee, John "Chip" Miller. Jr.
Attorney: William E. Hunt, Jr.
Bldg Inspector/Planner: Jim Yeagley
Finance Officer: Teri Ruff
Judge: Russell Mann
Superintendent: Bill Moritz
Community Development: Lorette Carter

March 4, 2008

Montana Department of Environmental Quality
Environmental Management Bureau
Attn: Tom Ring
P.O. Box 200901
Helena, MT 59620-0901

Committee Members:

I am writing on behalf of the community of Shelby and Office of Economic Development to support the efforts to construct the Montana Alberta Transmission Tie Line (MATL). Shelby, Toole County and Northern Montana are in a unique position of incredible economic benefit in the potential of the MATL line. With construction of the wind farms to begin soon, the approval of the line will create an invaluable source of electric transmission, incredible economic opportunity and reduction of taxes to those in the region. Comment 68

Our rural Montana region continually struggles with decades of drought, a depressed oil and gas industry and other economic factors beyond our control. The key to sustainability and development of a solid economic base is diversity and access to our available resources. Wind generation is an abundant, renewable resource that can provide a tremendous economic boost to our area in job creation, additional business and secondary services, reduction in taxes and wealth within our communities. Comment 69

MATL officials have been diligent in following all guidelines, garnering the commitment of landowners and assuring communities of their sincere commitment to the benefit and wellbeing of the community now and for generations to come. I sincerely hope you will consider the wishes of those who live, work and raise our families in our region. Outside interests have many voices, but the voice of those who live here need be heard loud and clear. Comment 70

Please support the efforts to bring new, clean industry to rural Montana. Help us keep our communities alive for our children and those that will come after us. Comment 71

Sincerely,

Lorette Carter

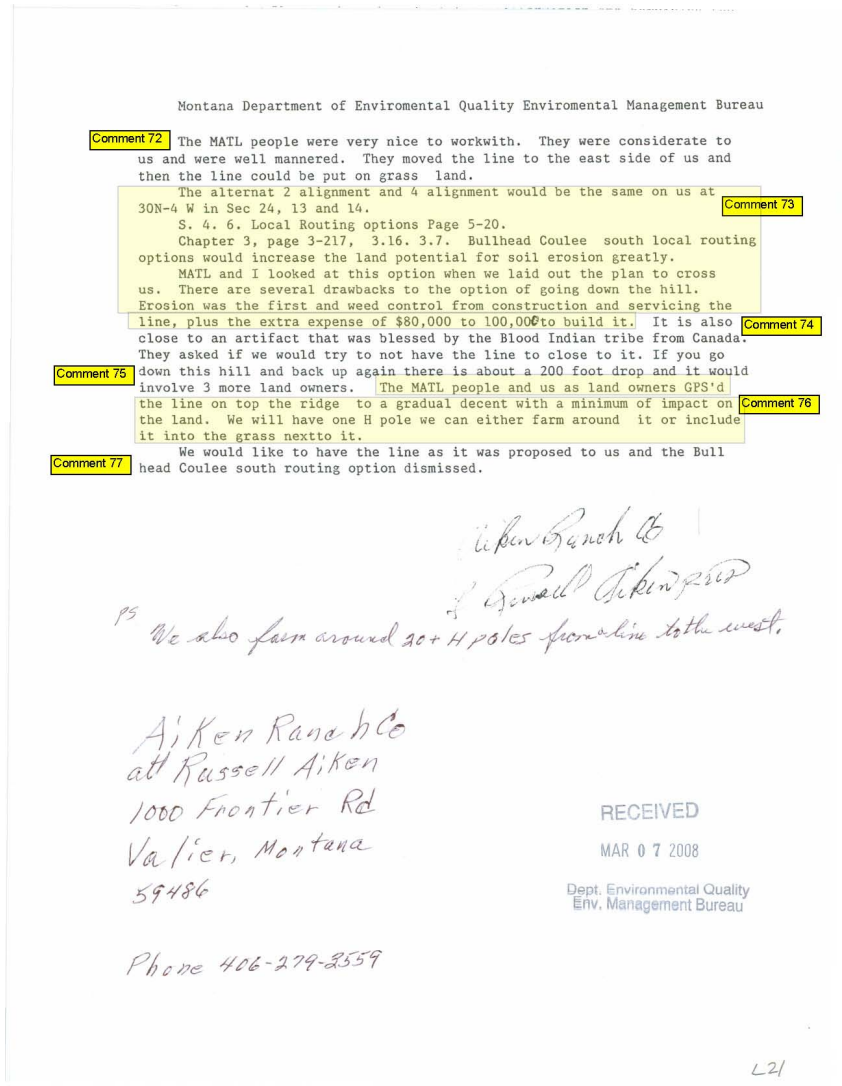
Lorette Carter
City of Shelby
112 1st St. So.
Shelby, MT 59474
(406) 424-8799
Fax: (406) 424-8413
shbcdc@3rivers.net

Cc: Larry Bonderud, Mayor
Shelby City Council

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Dept. Environmental Quality
Env. Management Bureau

4/6

Response 68 to 71: Your comments are noted.



Montana Department of Enviromental Quality Enviromental Management Bureau

Comment 72 The MATL people were very nice to workwith. They were considerate to us and were well mannered. They moved the line to the east side of us and then the line could be put on grass land.

The alternat 2 alignment and 4 alignment would be the same on us at 30N-4 W in Sec 24, 13 and 14. Comment 73

S. 4. 6. Local Routing options Page 5-20.

Chapter 3, page 3-217, 3.16. 3.7. Bullhead Coulee south local routing options would increase the land potential for soil erosion greatly.

MATL and I looked at this option when we laid out the plan to cross us. There are several drawbacks to the option of going down the hill. Erosion was the first and weed control from construction and servicing the line, plus the extra expense of $80,000 to 100,000 to build it. Comment 74 It is also close to an artifact that was blessed by the Blood Indian tribe from Canada. They asked if we would try to not have the line to close to it. If you go Comment 75 down this hill and back up again there is about a 200 foot drop and it would involve 3 more land owners. The MATL people and us as land owners GPS'd the line on top the ridge to a gradual decent with a minimum of impact on Comment 76 the land. We will have one H pole we can either farm around it or include it into the grass nextto it.

We would like to have the line as it was proposed to us and the Bull Comment 77 head Coulee south routing option dismissed.

Aiken Ranch &
Russell Aiken

PS We also farm around 20+ H poles from line to the west.

Aiken Ranch Co
att Russell Aiken
1000 Frontier Rd
Valier, Montana
59486

Phone 406-279-3559

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MAR 07 2008
Dept. Environmental Quality
Env. Management Bureau

L21

Response 72: Comment noted.

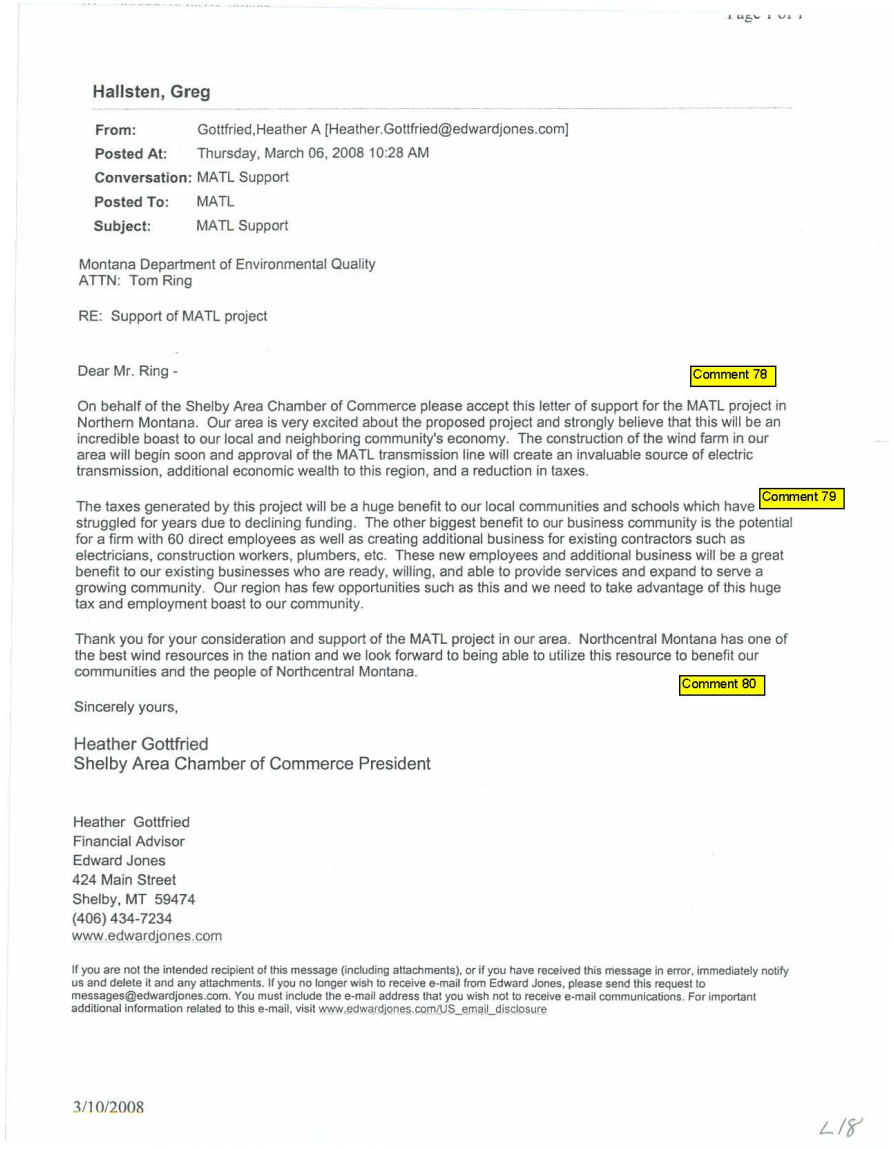
Response 73: Comment noted.

Response 74: Your comments reflect conclusions in the EIS, Section 3.16. Since publication of the Draft EIS, DEQ and MATL staffs have reviewed the Bullhead Coulee South local routing option. Both MATL's proposed Alternative 2 and the Bullhead Coulee South local routing option pass near the cultural resource site mentioned in your comment. MATL has committed to avoid cultural resource sites. See Table 2.3-4 in the EIS.

Response 75: Both MATL's proposed line and the local routing option would cross four landowners (Montana Cadastral project, March 2008). MATL would have to obtain right-of-way no matter which alternative is selected.

Response 76: Note that the location proposed by MATL would place the line on an adjacent landowner's land in a manner that would prevent a wind turbine from being located on his property. Navitas Energy is considering a project in this vicinity (Davies 2008).

Response 77: Your comment regarding the Bullhead Coulee South Local Routing Option is noted.



Hallsten, Greg

From: Gottfried,Heather A [Heather.Gottfried@edwardjones.com]
Posted At: Thursday, March 06, 2008 10:28 AM
Conversation: MATL Support
Posted To: MATL
Subject: MATL Support

Montana Department of Environmental Quality
ATTN: Tom Ring

RE: Support of MATL project

Dear Mr. Ring -

Comment 78

On behalf of the Shelby Area Chamber of Commerce please accept this letter of support for the MATL project in Northern Montana. Our area is very excited about the proposed project and strongly believe that this will be an incredible boast to our local and neighboring community's economy. The construction of the wind farm in our area will begin soon and approval of the MATL transmission line will create an invaluable source of electric transmission, additional economic wealth to this region, and a reduction in taxes.

Comment 79

The taxes generated by this project will be a huge benefit to our local communities and schools which have struggled for years due to declining funding. The other biggest benefit to our business community is the potential for a firm with 60 direct employees as well as creating additional business for existing contractors such as electricians, construction workers, plumbers, etc. These new employees and additional business will be a great benefit to our existing businesses who are ready, willing, and able to provide services and expand to serve a growing community. Our region has few opportunities such as this and we need to take advantage of this huge tax and employment boast to our community.

Thank you for your consideration and support of the MATL project in our area. Northcentral Montana has one of the best wind resources in the nation and we look forward to being able to utilize this resource to benefit our communities and the people of Northcentral Montana.

Comment 80

Sincerely yours,

Heather Gottfried
Shelby Area Chamber of Commerce President

Heather Gottfried
Financial Advisor
Edward Jones
424 Main Street
Shelby, MT 59474
(406) 434-7234
www.edwardjones.com

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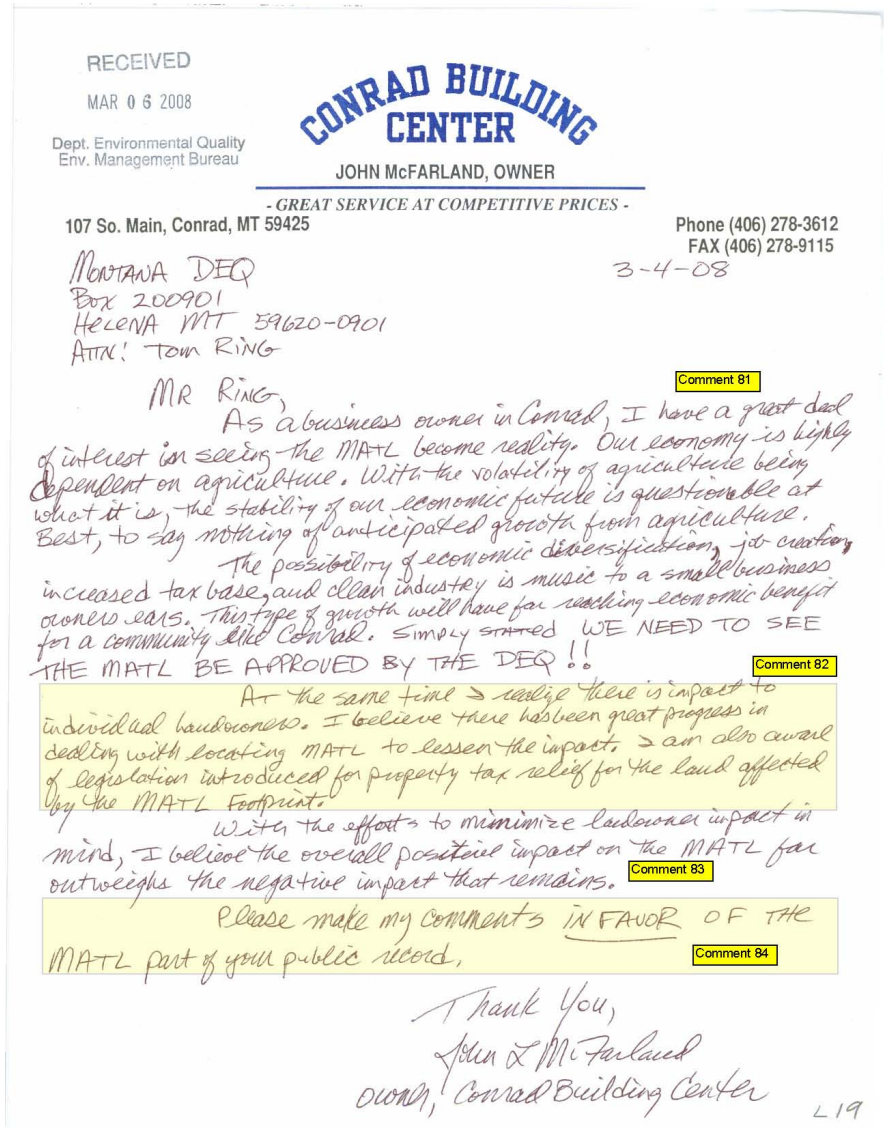
3/10/2008

L18

Response 78: Thank you for your comment.

Response 79: Thank you for your comment. Employment and tax revenue impacts and impacts to local services are discussed in Section 3.13. Also see Socioeconomic Impact Issues in the Consolidated Responses section.

Response 80: Comment noted.



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Env. Management Bureau

CONRAD BUILDING CENTER
JOHN McFARLAND, OWNER
- GREAT SERVICE AT COMPETITIVE PRICES -
107 So. Main, Conrad, MT 59425
Phone (406) 278-3612
FAX (406) 278-9115

3-4-08

MONTANA DEQ
BOX 200901
HELENA MT 59620-0901
ATTN: TOM RING

MR RING,

Comment 81

As a business owner in Conrad, I have a great deal of interest in seeing the MATL become reality. Our economy is highly dependent on agriculture. With the volatility of agriculture being what it is, the stability of our economic future is questionable at best, to say nothing of anticipated growth from agriculture. The possibility of economic diversification, job creation, increased tax base, and clean industry is music to a small business owners ears. This type of growth will have far reaching economic benefit for a community like Conrad. Simply stated WE NEED TO SEE THE MATL BE APPROVED BY THE DEQ !!

Comment 82

At the same time I realize there is impact to individual landowners. I believe there has been great progress in dealing with locating MATL to lessen the impact. I am also aware of legislation introduced for property tax relief for the land affected by the MATL Footprint.

With the efforts to minimize landowner impact in mind, I believe the overall positive impact on the MATL far outweighs the negative impact that remains.

Comment 83

Please make my comments IN FAVOR OF THE MATL part of your public record.

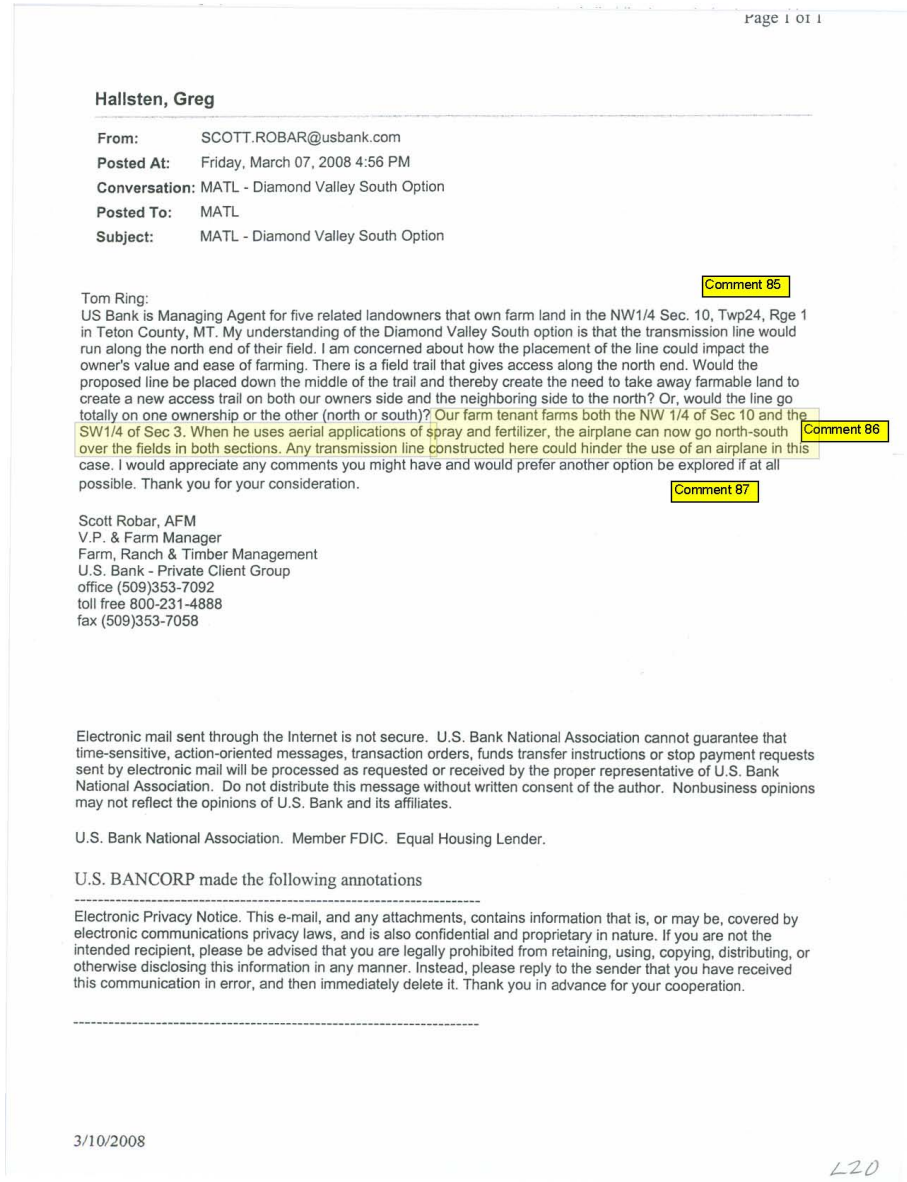
Comment 84

Thank You,
John L McFarland
owner, Conrad Building Center

L19

Response 81: Employment and tax revenue impacts and impacts to local services are discussed in Section 3.13.3.2. Also see Socioeconomic Issues in the Consolidated Responses section.

Response 82 to 84: Your comments are noted.



Page 1 of 1

Hallsten, Greg

From: SCOTT.ROBAR@usbank.com
Posted At: Friday, March 07, 2008 4:56 PM
Conversation: MATL - Diamond Valley South Option
Posted To: MATL
Subject: MATL - Diamond Valley South Option

Comment 85

Tom Ring:
US Bank is Managing Agent for five related landowners that own farm land in the NW1/4 Sec. 10, Twp24, Rge 1 in Teton County, MT. My understanding of the Diamond Valley South option is that the transmission line would run along the north end of their field. I am concerned about how the placement of the line could impact the owner's value and ease of farming. There is a field trail that gives access along the north end. Would the proposed line be placed down the middle of the trail and thereby create the need to take away farmable land to create a new access trail on both our owners side and the neighboring side to the north? Or, would the line go totally on one ownership or the other (north or south)? Our farm tenant farms both the NW 1/4 of Sec 10 and the SW1/4 of Sec 3. When he uses aerial applications of spray and fertilizer, the airplane can now go north-south over the fields in both sections. Any transmission line constructed here could hinder the use of an airplane in this case. I would appreciate any comments you might have and would prefer another option be explored if at all possible. Thank you for your consideration.

Comment 86

Comment 87

Scott Robar, AFM
V.P. & Farm Manager
Farm, Ranch & Timber Management
U.S. Bank - Private Client Group
office (509)353-7092
toll free 800-231-4888
fax (509)353-7058

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U.S. BANCORP made the following annotations

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3/10/2008

L20

Response 85: All of these comments refer to the Diamond Valley South local routing option. If adjacent property owners cannot agree on a line location that would straddle the property line, the intent is that the line would be located far enough off the edge of any field road to allow passage of the largest expected piece of farm equipment in a folded position. For example, a combine with the header attached may be the widest piece of equipment expected.

Response 86: The aerial applicator may not be able to fly north and south unhindered if a power line is present. Likewise, an aerial applicator may not be able to fly the length of a field unhindered with a diagonal line crossing it.

Response 87: Comments as well as information in the Draft EIS will be weighed and balanced in making final location decision.



RECEIVED

MAR 0 7 2008

Dept. Environmental Quality
Env. Management Bureau

Environmental Sciences Specialist
Montana DEQ
Attn: Tom Ring
Helena, Mt.

My name is Jack Hayne, Dupuyer, Mt.

Comment 88

I am a rancher/farmer who has lived in Pondera county over 50 years. I believe that MATL could give us a chance to improve our local economy and perhaps halt the decline of our local communities.

Comment 89

I especially favor this line because, as a nation we need all the energy sources we can generate.

Comment 90

Basically MATL provides a means for wind farms to market their power and it is a clean carrier of energy in our environment. I much prefer wind farms generating power than to have another coal fired power plant in the area.

Comment 91

I believe that MATL has tried to treat the land owners fairly. If we go into all the nit picking of pole location, the proposed line might not be built.

Comment 92

I know that MATL does not generate power in itself but it is the catalyst that would give the wind farms a place to market their product.

Comment 93

If I were in charge of the project. I would change the location of the line to run down highway 89. It would then run through the middle of our ranch. This might then make our local wind farms a reality and would keep our community alive.

Sincerely,

Jack Hayne

Jack Hayne
Box 209
Dupuyer, Montana
59432

L22

Response 88: Comment noted. Economic benefits are discussed in Section 3.13.3.2 and in Socioeconomic Impact Issues in the Consolidated Responses section.

Response 89 to 92: Comments noted.

Response 93: Routing down Highway 89 is outside the study area. Figure 2.3-2 shows the study area boundary.

Response 94: Comment noted.

March 8, 2008

Montana Department of Environment Quality

Environmental Management Bureau

Attn: Tom Ring
P.O. Box 200901
Helena MT. 59620-0901

Dear Attn: Tom Ring: Comment 94

I'm writing this letter as I support the MATL system that would be very good for the economy of Northern Montana and Toole County .As you probably know the wind in this part of Montana is very productive . Ecology is very important to this to this country , this is a clean source of energy. Remember , Montana needs these jobs .

Thank you

Dave Miller

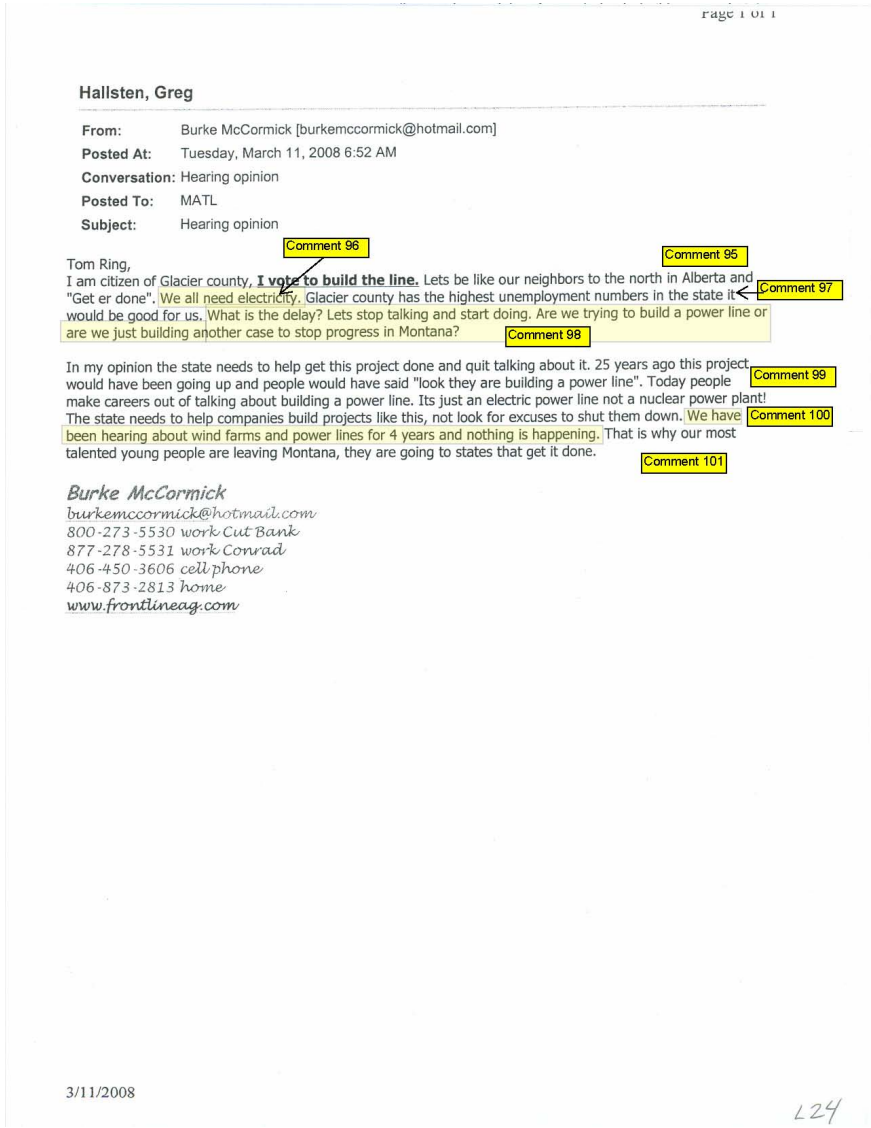
Toole County Commissioner

226 1 st. So.

Shelby Mt. 59474

RECEIVED
MAR 10 2008
Dept. Environmental Quality
Env. Management Bureau

L23



Page 1 of 1

Hallsten, Greg

From: Burke McCormick [burkemccormick@hotmail.com]
Posted At: Tuesday, March 11, 2008 6:52 AM
Conversation: Hearing opinion
Posted To: MATL
Subject: Hearing opinion

Comment 96

Comment 95

Tom Ring,
I am citizen of Glacier county, **I vote to build the line.** Lets be like our neighbors to the north in Alberta and "Get er done". We all need electricity. Glacier county has the highest unemployment numbers in the state it would be good for us. What is the delay? Lets stop talking and start doing. Are we trying to build a power line or are we just building another case to stop progress in Montana?

Comment 97

Comment 98

In my opinion the state needs to help get this project done and quit talking about it. 25 years ago this project would have been going up and people would have said "look they are building a power line". Today people make careers out of talking about building a power line. Its just an electric power line not a nuclear power plant! The state needs to help companies build projects like this, not look for excuses to shut them down. We have been hearing about wind farms and power lines for 4 years and nothing is happening. That is why our most talented young people are leaving Montana, they are going to states that get it done.

Comment 99

Comment 100

Comment 101

Burke McCormick
burkemccormick@hotmail.com
800-273-5530 work Cut Bank
877-278-5531 work Conrad
406-450-3606 cell phone
406-873-2813 home
www.frontlineag.com

3/11/2008

L24

Response 95: Thank you for your comment.

Response 96: Thank you for your comment.

Response 97: Unemployment data and trends by county are presented in Table 3.13-3.

Response 98: The additional environmental review was prompted by extensive public comment on the March 2007 document. Federal agency decisions will be issued subsequent to this EIS in the form of a Record of Decision for each agency or as a letter of concurrence, no sooner than 30 days after this Final EIS is available. DEQ may not make a final decision sooner than 15 days after the final EIS is available and may time a decision on whether to issue a certificate to coincide with the decisions of the Federal agencies.

Response 99 to 101: Your comments are noted.

March 11, 2008

Tom Ring
Montana Department of Environmental Quality Mgmt Bureau
PO Box 200901
Helena, MT 59620-0901

RE: Support of MATL

Dear Mr. Ring:

Comment 102

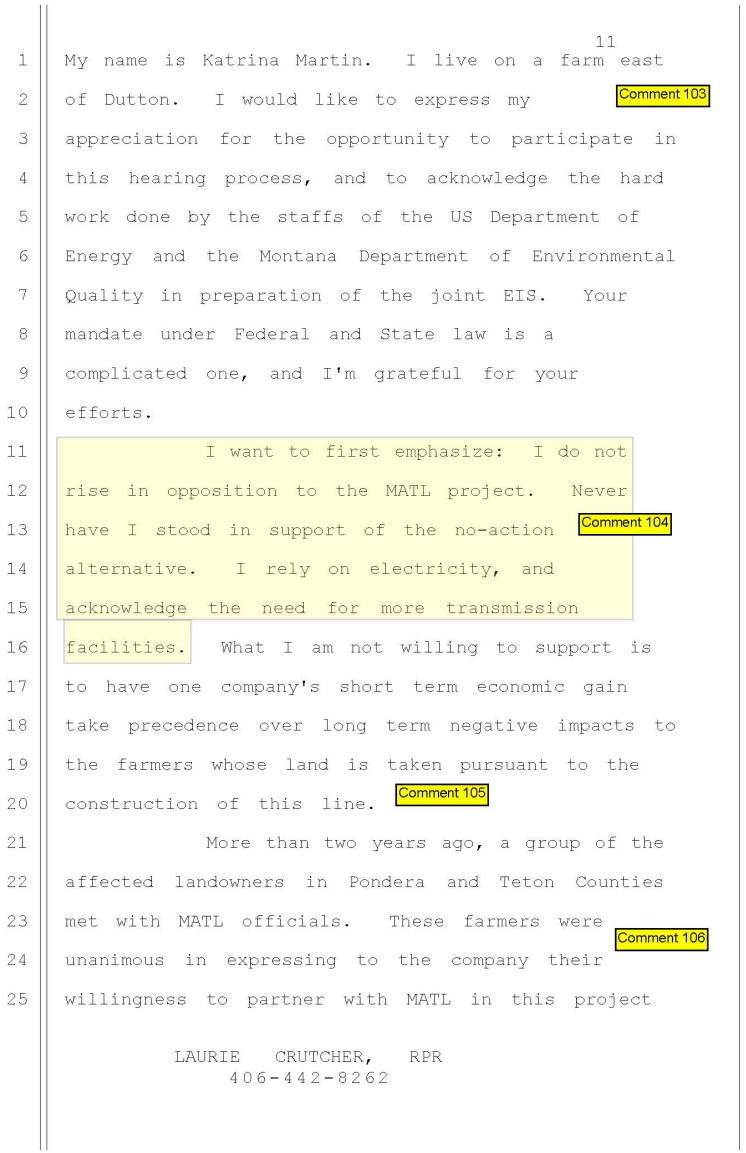
I am writing in support of the MATL. I support the MATL because it benefits both consumers and generators through additional connection with markets in demand of energy. It also will allow additional purchasing options for Montana utilities resulting in lower rates for consumers. MATL is an economic opportunity for Montana by providing additional transmission capacity.

My name is Vanessa Bucklin, and I support MATL.

Sincerely,

Vanessa Y. Bucklin

Response 102: Comment noted.



11

My name is Katrina Martin. I live on a farm east of Dutton. I would like to express my appreciation for the opportunity to participate in this hearing process, and to acknowledge the hard work done by the staffs of the US Department of Energy and the Montana Department of Environmental Quality in preparation of the joint EIS. Your mandate under Federal and State law is a complicated one, and I'm grateful for your efforts.

Comment 103

I want to first emphasize: I do not rise in opposition to the MATL project. Never have I stood in support of the no-action alternative. I rely on electricity, and acknowledge the need for more transmission facilities. What I am not willing to support is to have one company's short term economic gain take precedence over long term negative impacts to the farmers whose land is taken pursuant to the construction of this line.

Comment 104

Comment 105

More than two years ago, a group of the affected landowners in Pondera and Teton Counties met with MATL officials. These farmers were unanimous in expressing to the company their willingness to partner with MATL in this project

Comment 106

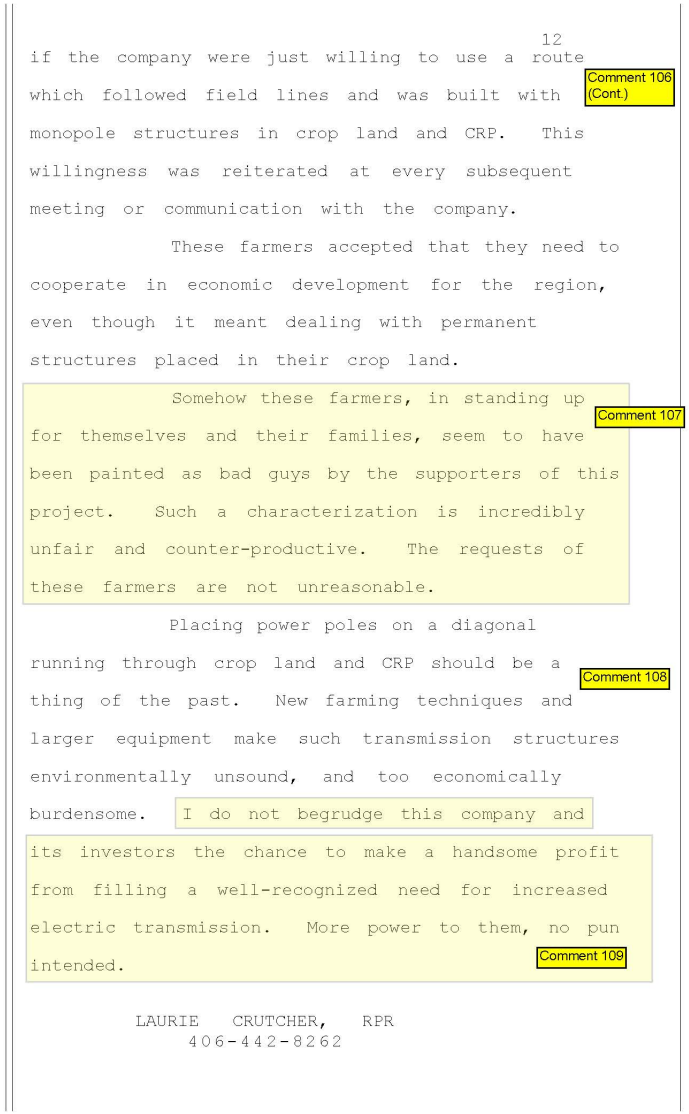
LAURIE CRUTCHER, RPR
406-442-8262

The following responses are to comments received at the public hearing in Great Falls.

Response 103 to 104: Your comments have been noted.

Response 105: Comment noted.

Response 106: The information about your past work with MATL is noted.



12

if the company were just willing to use a route which followed field lines and was built with monopole structures in crop land and CRP. This willingness was reiterated at every subsequent meeting or communication with the company. Comment 106 (Cont.)

These farmers accepted that they need to cooperate in economic development for the region, even though it meant dealing with permanent structures placed in their crop land.

Somehow these farmers, in standing up for themselves and their families, seem to have been painted as bad guys by the supporters of this project. Such a characterization is incredibly unfair and counter-productive. The requests of these farmers are not unreasonable. Comment 107

Placing power poles on a diagonal running through crop land and CRP should be a thing of the past. New farming techniques and larger equipment make such transmission structures environmentally unsound, and too economically burdensome. I do not begrudge this company and its investors the chance to make a handsome profit from filling a well-recognized need for increased electric transmission. More power to them, no pun intended. Comment 108 Comment 109

LAURIE CRUTCHER, RPR
406-442-8262

Response 107: Your comment is noted.

Response 108: See the discussion of Farming Issues in the Consolidated Responses section. Since publication of the Draft EIS MATL has proposed an alternative dispute resolution process to be used in conjunction with its compensation package to help alleviate the economic burden to farmers since publication of the Draft EIS. See Section 2.3 has been changed to reflect this revised proposal.

Response 109: Your comment is noted.

Comment 110 To see the extent of that profit, simply visit the Tonbridge web site, where it is reported the company projects revenues of nearly a billion dollars from the 25 year contracts now in place. It thus defies the imagination to take as credible the company's current claim it cannot possibly be expected to spend around $5 million extra dollars to implement the alternative, Alternative 4, which the agencies have analyzed as being, "The most protective alternative for the maintenance and enhancement of long term productivity of the environment, while benefiting socioeconomic resources."

Comment 111 Our state has accorded MATL many advantages since its application was filed. From the outset, the economic development staff of the Governor's Office has worked closely with the company to help it achieve its goals. The 2007 Legislature created an Energy Infrastructure Promotion Office, with a $330,000 annual budget, whose sole mission includes assuring MATL the MATL project gets built.

Comment 112 The Legislature also enacted a 75 percent property tax cut for the company, from which it will reap nearly $800,000 each year. A

Response110: Your opinion is noted.

Response 111: The economic development staff has been actively involved with the MATL project.

Response 112: See the discussion of Tax Issues in the Consolidated Responses section.

tax break for property owners whose land is taken amounts to $40,000.

Comment 113 With all this help from the government, it seems impossible to view this company as persecuted, because the farmers who will forever bear the burden of the line are not willing to just let the company build the line as cheaply as possible. Over a fifty year life of this facility, the property tax break dollars by Comment 114 themselves will nearly pay for the construction of the line in Montana, projected at approximately $40 million. It is not unreasonable for farmers to push for the option of Alternative 4 when that agency alternative clearly recognizes the validity of the producer's position, and mitigates serious adverse affects on production agriculture. Comment 115

Comment 116 But let's return for a moment to the advantages accorded to this company by our state. Looming over every affected property owner is the knowledge that this Canadian company, building a for-profit merchant line, has the power to condemn the land it says it needs. This company, with its billion dollar revenue projection, has the authority to invoke eminent domain over property owners. These farmers' private property rights

Response 113 to 116: Comments noted.

can be extinguished to make way for this merchant line, a line which is not regulated by the PSC, because under the law, it does not constitute a public utility from which Montana consumers are guaranteed to benefit.

Comment 117 Is it any wonder these landowners hope the regulators will at least ensure that the chosen alternative reduces negative environmental and economic impacts to those owners.

Comment 118 Not long ago, I came across a clear policy statement issued by the Montana Legislature that seems relevant to the current permit application. "It is the policy of the State of Montana to promote energy conservation, production, and consumption of a reliable mix of energy sources, that represent the least social, environmental, and economic costs, and the greatest long term benefits to Montana citizens."

Comment 119 Alternative 2 does not represent the least environmental and economic costs to Montana citizens. Instead, it represents the least cost to the company. Alternative 4, the agency's alternative, does represent the least social, environmental, and economic costs, and the greatest long term benefits to Montana citizens.

Response 117: Comment noted.

Response 118: Comment noted. The policy statement appears in Section 90-4-1001, MCA, of the state energy policy goal statement.

Response 119: The Department must apply the criteria set forth in the Administrative Rules of Montana 17.20.1604 in determining whether a proposed facility serves the public convenience and necessity. In general terms, it requires the Department to determine that the benefits of the proposed facility are greater than any other reasonable alternative based on the following:

a. The Department's determination as to the need for the facility discussed in Sections 1.2 and 3.17.
b. The cumulative environmental impacts of the facility discussed in Chapter 4.
c. The benefits to the applicant, the state of Montana, the applicant's customers, and any other entities benefiting from the facility as discussed in Chapters 2, 3, and 4.
d. The effects of the economic activity resulting from the proposed facility as discussed in Chapters 3 and 4.
e. The costs of the facility including internal costs of construction and operation and mitigation costs, plus other external costs and unmitigated environmental costs as discussed in Chapter 3.
f. Any other relevant factors.

Comment 120 I do not oppose this project, even though I can't say I look forward to having yet another large transmission line in my neighborhood. I do support the issuance of a permit based upon Alternative 4. This line, and the future lines which we know are coming, need to be built on an orientation with field lines, and the use of monopoles in crop land and CRP.

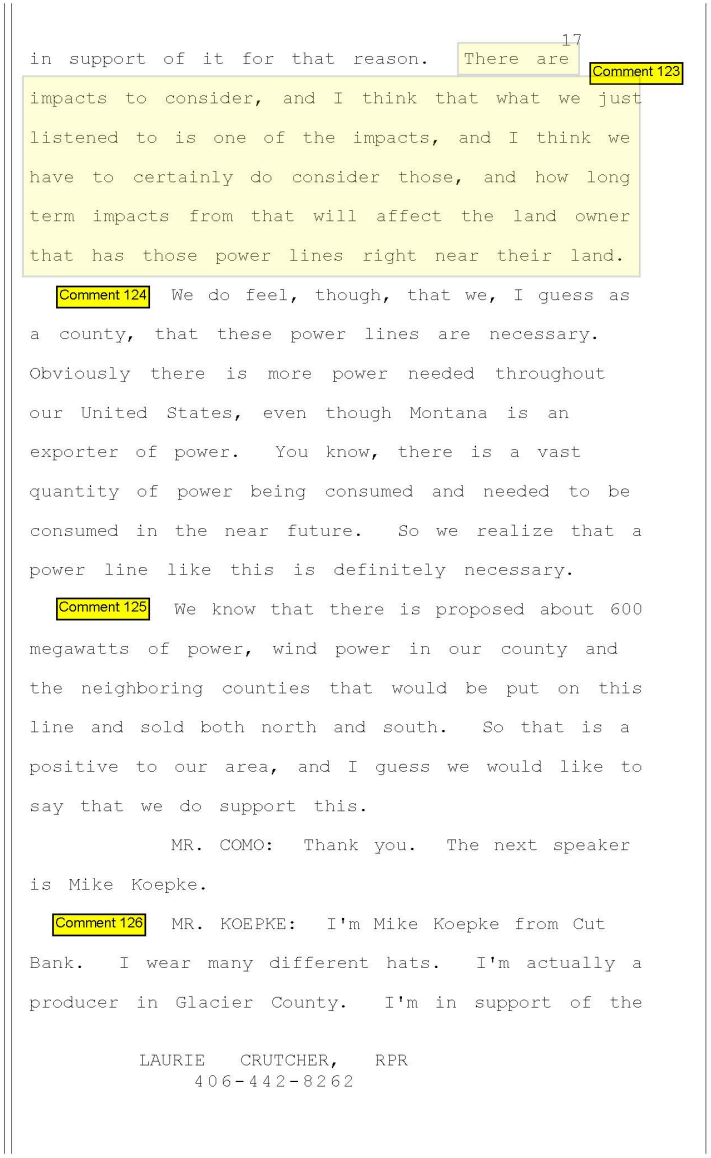
Comment 121 Farmers who have been stewards of these lands for generations should not have to bear the burden of unsafe, costly structures in their crop land and CRP simply because a company wants to keep a bit of extra money in its pocket. That should not be the way we do business in Montana. Good public policy prescribes the choice of Alternative 4 as the basis for the permits at issue here. Thank you for your consideration.

MR. COMO: The next person signed up is Allan Underdal.

Comment 122 MR. UNDERDAL: Hi. My name is Allen Underdal. I am a Commissioner with Toole County in north central Montana. And we would like to say as Commissioners that we do support this line. We feel that power lines obviously are important to economic development in our region, and we are

Response 120 to 121: Comments noted.

Response 122: Comments noted.



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in support of it for that reason. There are impacts to consider, and I think that what we just listened to is one of the impacts, and I think we have to certainly do consider those, and how long term impacts from that will affect the land owner that has those power lines right near their land. Comment 123

Comment 124 We do feel, though, that we, I guess as a county, that these power lines are necessary. Obviously there is more power needed throughout our United States, even though Montana is an exporter of power. You know, there is a vast quantity of power being consumed and needed to be consumed in the near future. So we realize that a power line like this is definitely necessary.

Comment 125 We know that there is proposed about 600 megawatts of power, wind power in our county and the neighboring counties that would be put on this line and sold both north and south. So that is a positive to our area, and I guess we would like to say that we do support this.

MR. COMO: Thank you. The next speaker is Mike Koepke.

Comment 126 MR. KOEPKE: I'm Mike Koepke from Cut Bank. I wear many different hats. I'm actually a producer in Glacier County. I'm in support of the

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Response 123: The costs of farming around structures have been updated and changed in Section 3.13.3.2 of the EIS. The amount of cropland crossed is discussed in Section 3.1. Also see the discussion of `Farming Issues in the Consolidated Responses section.

Response 124: Comments noted.

Response 125: Your comment regarding 600 MW of wind generation in the area is noted.

Response 126: Comments noted.

MATL line. It's going to be going through my property, but I feel it's my position or responsibility to help bring economic growth to Glacier County, and it's going to be an inconvenience, but it's something I'm willing to deal with in order to bring economic growth to Cut Bank.

Comment 127 I also manage another farm, my parents' farm, and the MATL line is going to go through that farm, too, about 12 miles away; and the farm has decided that they're in support of the MATL line also.

Comment 128 I'm also the Executive Director for Cut Bank Development Corporation, and we're in favor of the MATL line because of economic possibility of growth in Glacier County. We, the Cut Bank Development Corporation, basically asks that all of the farmers be treated fairly and just.

Comment 129 I'm also the Chairman of the School Board in Cut Bank, and we see this as an opportunity to help build the tax base for Glacier County, which will help kids in the long run. Thank you.

MR. COMO: Thank you very much for your comments. Harold Olson.

Response 127 to 129: Comments noted.

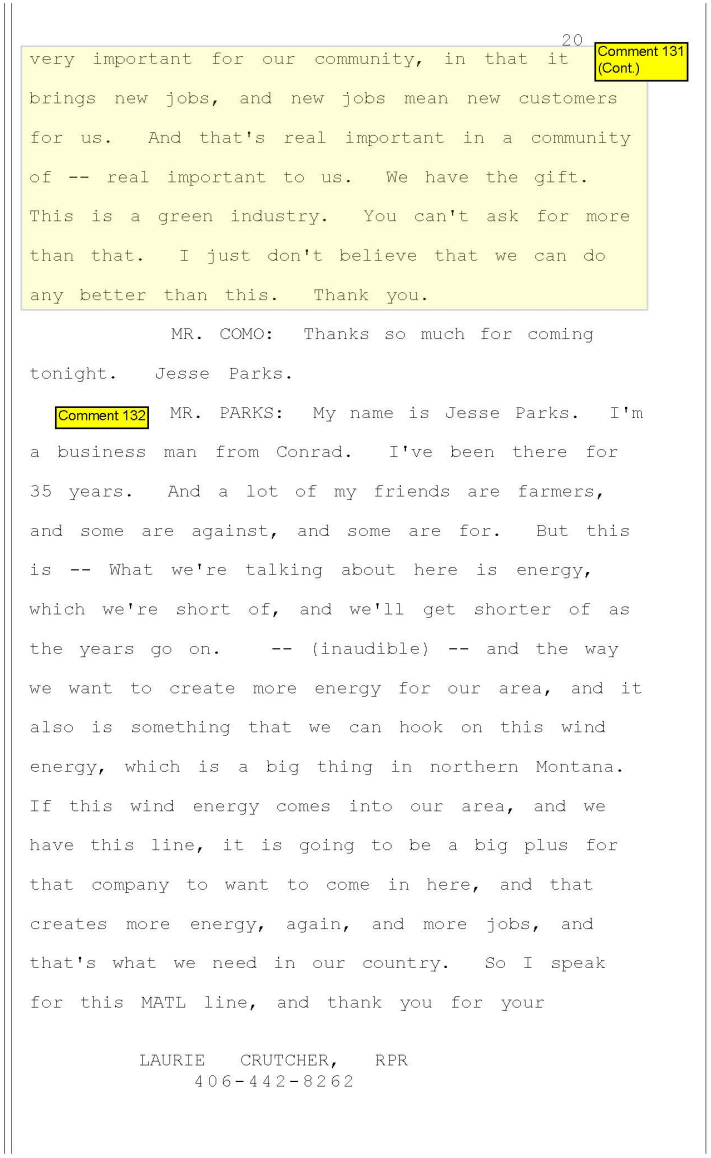
Comment 130 MR. OLSON: Members of the committee, I'm Harold Olson from Conrad, President of the Pondera Economic Development Corporation, one of the oldest economic development groups in the state.

We have encountered lots of economic development projects in the past, and as we see the diminishing opportunities of coal, gas, forestry, mining, and so many industries that Montana has been dependent upon in the past, no longer being available to us, this opens up an opportunity for resources that have only begun to be developed in our area. So our group is very strongly in favor of the MATL line. We think that it will be a spring board to greater opportunities in the energy crisis that we sometimes see. Thank you for your consideration.

MR. COMO: Thank you, Mr. Olson. We have Gordon from Shelby. I can't read the last name. Could you spell your last name.

Comment 131 MR. SMEDSRUD: Smedsrud, S-M-E-D-S-R-U-D. My name is Gordon Smedsrud. I'm partnership in an agency, insurance agency involved in Conrad, Cut Bank, and Shelby, all of the towns that are affected. We believe it is

Response 130 to 131: Comments noted.



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very important for our community, in that it brings new jobs, and new jobs mean new customers for us. And that's real important in a community of -- real important to us. We have the gift. This is a green industry. You can't ask for more than that. I just don't believe that we can do any better than this. Thank you.

Comment 131 (Cont.)

MR. COMO: Thanks so much for coming tonight. Jesse Parks.

Comment 132

MR. PARKS: My name is Jesse Parks. I'm a business man from Conrad. I've been there for 35 years. And a lot of my friends are farmers, and some are against, and some are for. But this is -- What we're talking about here is energy, which we're short of, and we'll get shorter of as the years go on. -- (inaudible) -- and the way we want to create more energy for our area, and it also is something that we can hook on this wind energy, which is a big thing in northern Montana. If this wind energy comes into our area, and we have this line, it is going to be a big plus for that company to want to come in here, and that creates more energy, again, and more jobs, and that's what we need in our country. So I speak for this MATL line, and thank you for your

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Response 132: Comment noted.

consideration.

MR. COMO: Thank you very much. Joe Christiaens. I'll ask you to spell your name, too.

MR. CHRISTIAENS: It's Christiaens, like the Christians and the lions. My name is Joe Christiaens, and I'm a Pondera County Commissioner in Conrad.

Comment 133 And we support this very much because of the economic development, and also for tax purposes that we've got going on in our county. We're getting really close to being stretched clear to the end.

Comment 134 We also support the fact that we would like to see the company get along with the farmers. We understand what their condition that is going along, and it's getting the poles out there, too, and we want that to also be addressed.

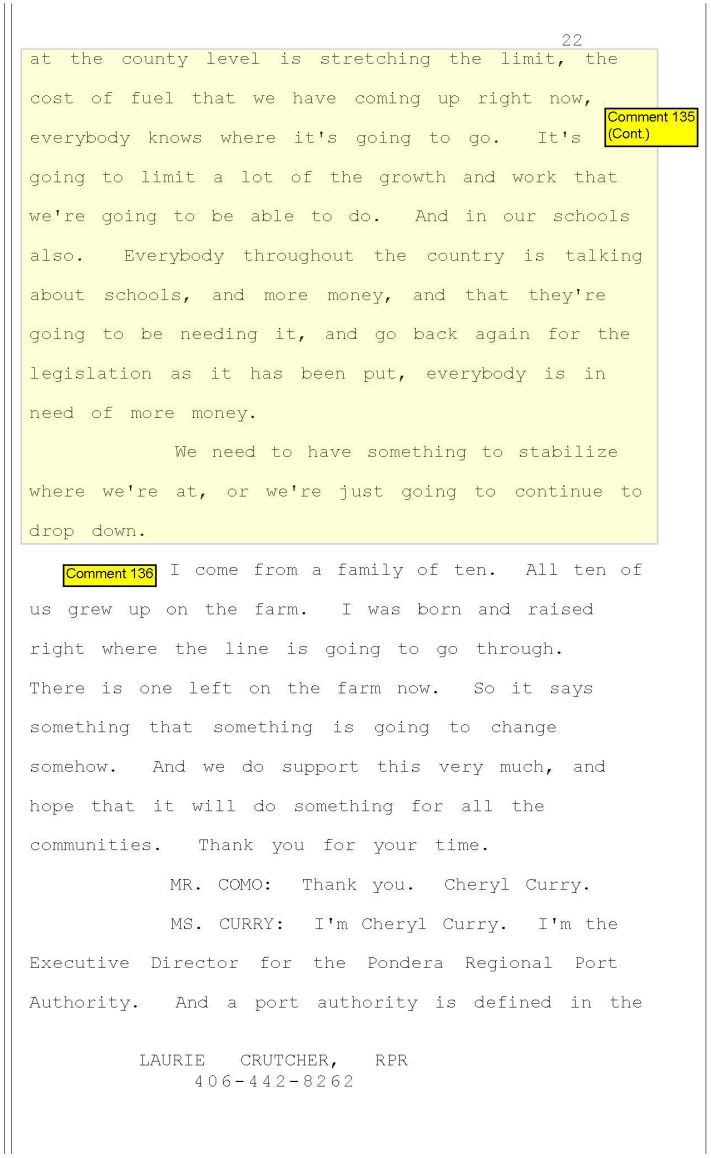
Comment 135 But when you look around at all of the counties in this area and also here, what I heard on the radio is morning, Great Falls is losing 200 students every year. I think this is a bit of a problem, and we've got the same problem, too, but not in the large numbers.

But you look at that, when our equipment

Response 133: Comment noted.

Response 134: See Farming Issues in the Consolidated Responses section.

Response 135: Comments noted. See Socioeconomic Issues in the Consolidated Responses section.



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at the county level is stretching the limit, the cost of fuel that we have coming up right now, everybody knows where it's going to go. It's going to limit a lot of the growth and work that we're going to be able to do. And in our schools also. Everybody throughout the country is talking about schools, and more money, and that they're going to be needing it, and go back again for the legislation as it has been put, everybody is in need of more money.

Comment 135 (Cont.)

We need to have something to stabilize where we're at, or we're just going to continue to drop down.

Comment 136 I come from a family of ten. All ten of us grew up on the farm. I was born and raised right where the line is going to go through. There is one left on the farm now. So it says something that something is going to change somehow. And we do support this very much, and hope that it will do something for all the communities. Thank you for your time.

MR. COMO: Thank you. Cheryl Curry.

MS. CURRY: I'm Cheryl Curry. I'm the Executive Director for the Pondera Regional Port Authority. And a port authority is defined in the

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Response 136: Comment noted.

law, and is created by resolution and public vote for the purpose to promote, stimulate, develop, and advance the general welfare, commerce, and economic development, and prosperity through its jurisdiction, and of the state and its citizens. Comment 136 (Cont.)

A port authority also acts in cooperation and in conjunction with other organizations to develop industry, manufacturing, natural resources, services, agriculture, health care, and other economic activities.

Our goal is to help create a vital community for future generations of rural Montanans.

Comment 137 The Pondera Regional Port Authority supports the Montana-Alberta Transmission Line. The construction of this line will have strong, positive economic impact in the area, and creates the potential to develop wind power in the future. The power lines and associated wind development will add jobs and tax base to our struggling economy. It is clean, and has low impact on the environment.

Comment 138 I have read the Environmental Impact Statement, and believe that economic benefits outweighs the few minor environmental concerns.

Response 137 to 138: Comments noted.

There are inconveniences to affected farms and ranches, but they are compensated to a certain extent by -- (inaudible) -- and payments from MATL, as well as by tax reductions on the affected land. Comment 139

Comment 140 As a nation, our energy demands are ever increasing, and our options for production unlimited. The development of clean wind power and the lines to transport it make sense for this area and for the nation. Please support the construction of the MATL transmission line. The environmental impacts are minor, and the economic benefits are great. Thank you for your consideration.

MR. COMO: This goes for anyone. If you're reading something that you're already prepared in addition to speaking, if you'd like to leave it with us, so that we make sure that we get every one of your words, that would be great also.

Lorette Carter.

MS. CARTER: Hello. My name is Lorette Carter, and I am the Economic Development Director for the City of Shelby. But I'm not here tonight as a city official, I'm here as a parent.

We are very fortunate here in Montana to

Response 139 to 140: Comments noted.

have exceptional colleges and universities for our children to receive a good post secondary education. I have three sons, one who has graduated, and two that are presently attending Montana Tech. These boys are receiving an incredible education, yet we are educating them to leave the state.

In 2006, statistical information for Montana Tech School of Mines and Engineering graduates, 76 percent went to work out of state. My son is an occupational safety and health engineer in Paramus, New Jersey; and my second son is now pursuing a second degree in the hopes to remain in Montana after graduation.

Comment 141 Projects such as the Montana-Alberta Transmission Line have the potential to create opportunities and employment for all our children. The project may have limited permanent employment opportunity, but has tremendous potential to open the doors to other clean viable industry in our state. Comment 142 Projects of this magnitude require numerous secondary services in project related employment. It will generate tremendous tax reductions and wealth within our communities that may translate into new industry and new job Comment 143

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Response 141 to 143: Comments noted.

creation.

Comment 144 Ultimately it announces to all that Montana welcomes clean viable industry, and that our best and brightest need not leave the state to find good jobs. Outside interests have many voices, but I hope you will consider the voices of those who live, and work, and raise our families in this region. Help us keep our small rural communities alive, so that our children and others can return to the state, and it will benefit generations to come. Thank you.

MR. COMO: Thank you. Steve Sheffels.

MR. SHEFFELS: My name is Steve Sheffels. We farm just north of the termination point in Great Falls. We have several concerns that were not addressed by the draft proposal, and the concerns that have arisen since our last opportunity to comment. Some of these concerns we feel need to be addressed are as follows:

Comment 145 Long span mono poles with 6.5 foot wide concrete foundations should be required for any portion of the transmission line that cross or border farm fields. It has been reported that the Alberta portion of the proposed Montana-Alberta Tie Line is being required to use single poles

Comment 146

Response 144: Comments noted.

Response 145: Your comment regarding long-span monopoles is noted. Details of the types of poles proposed are in Figure 2.3-5.

Response 146: In Canada, monopoles are being used only in areas with center pivot irrigation, not along the entire line.

through farming lands. Is this true?

Comment 147 Although the initial costs might be somewhat higher, these lines are built to last a long time. We've been farming around existing lines for over 70 years. Less land is removed from production, and it's much easier to maneuver around a single pole than a double pole design.

Comment 148 Very serious consideration should be given to weigh the difference in short term up-front costs against the long term costs to the farmer who will be living with these decisions for generations. What justification could be used to treat farmers differently on each side of the border?

Comment 149 How will the alternate routes of MATL be evaluated? Will there be a public open process? How will the weighting of various factors be decided? Who decides the weighing factors? Who decides between the alternatives?

Comment 150 House Bill 3 of the May 2007 special session permanently reduced property tax breaks from 12 percent to 3 percent for new investments in transmission lines that are constructed after June 2007. For Alternative 4, this change has reduced the total property tax income for the

Response 147: Transmission lines do last a long time. Some of the oldest transmission lines in the state, 100kV lines from Great Falls and the powerhouse on Ennis Lake to Butte, are 100 years old this year. Monopoles are proposed for all diagonally crossed cropland and CRP land. See Farming Issues in the Consolidated Responses section.

Response 148: A new analysis comparing the costs of farming around the transmission line under Alternative 2 to the costs of constructing the line to minimize farmer impacts (Alternative 4) has been added to the EIS. See Section 3.13.3.2. Different laws govern siting on each side of the border.

Response 149: In their decision documents, the agencies will indicate the alternative selected and the reasons for the selection.

Response 150: See the discussion of Tax Issues and Economic Issues in the Consolidated Responses section. The costs and benefits of the project will be weighed in the agencies' decisions.

state of Montana from $3,157,952 to $789,488. Cascade County's income is reduced from $435,360 to $180,840.

Comment 150 (Cont.) How does this new rate affect the approval process of the MATL line? What, if any, taxes will MATL be paying to the State of Montana for the revenue they receive from doing business in the state above and beyond the property taxes?

Comment 151 Landowners of wind towers are being compensated approximately $2,500 per tower per year. How does this compare with what is being proposed for transmission line easement owners? It seems that the wind tower owners are receiving much more. Both project types are being funded by private investment; both project types impact landowners in similar ways. Why isn't MATL required to pay market rates for the land use like wind power projects owners are?

Comment 152 Does MATL comply with Federal Energy Regulation Commission Order 890? If not, why not? What changes occurred or would be required for compliance? Will the EIS be updated to reflect these changes/requirements?

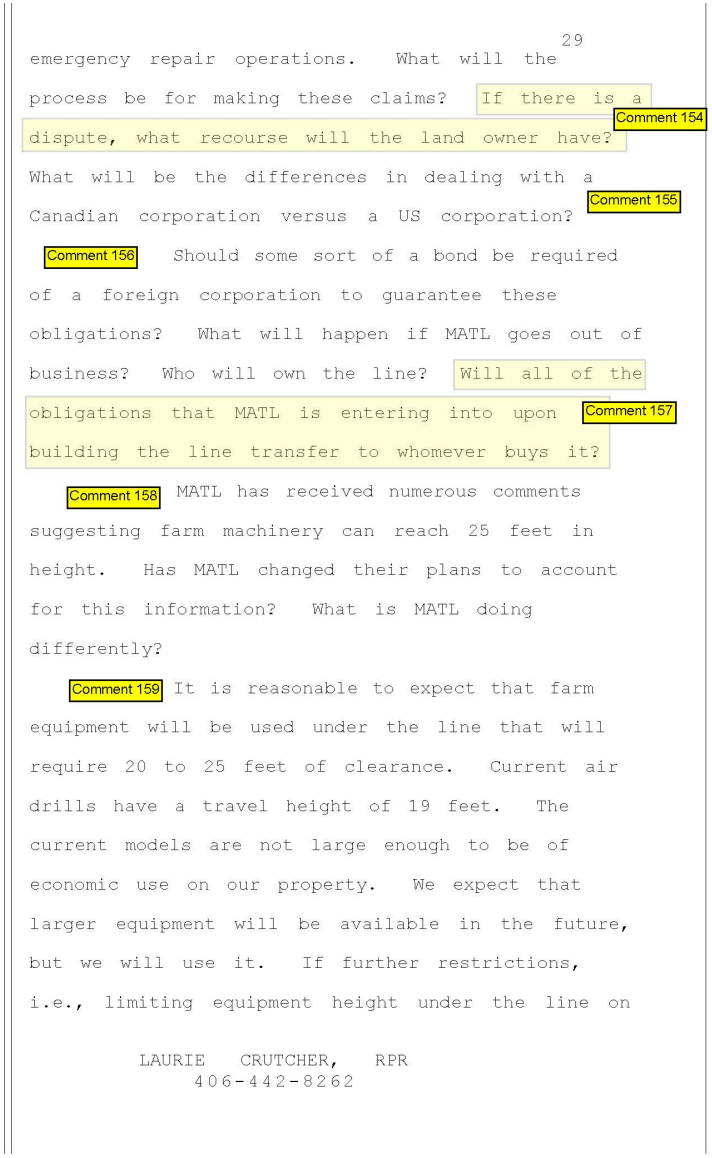
Comment 153 MATL claims in the EIS that they will be responsible for damages to land and crops from

Response 151: MATL would compensate landowners for the acquisition of its easement in a manner that is consistent with normal industry practice in Montana and other North American locations. A unique component of the compensation structure that has not been used before in Montana is an annual payment. The differences in computation of payments to landowners between the MATL line and wind farms is that for wind farms the landowner is paid a royalty based on the amount of power generated while for MATL the proposal is to pay the landowner for costs incurred.

In a letter dated June 19, 2008, MATL proposed an alternative dispute resolution process that has a bearing on the issue of compensation. It is more fully described in the EIS, Section 2.3.

Response 152: Order No. 890 is administered by the Federal Energy Regulatory Commission and establishes the requirements for Open Access Transmission Tariffs that are filed by public utilities. The issues of whether or not this order applies to MATL and whether MATL has complied with the provisions of this order are issues that are out of scope for an EIS.

Response 153: Soon after repairs to the line are completed, MATL would contact landowners and payment for damages would be made. Alternatively landowners could contact MATL and a MATL land agent would respond, inspect the damage, and pay for damages. Also see revisions to Section 2.3 in the EIS regarding MATL's compensation package.



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emergency repair operations. What will the process be for making these claims? If there is a dispute, what recourse will the land owner have? What will be the differences in dealing with a Canadian corporation versus a US corporation? Should some sort of a bond be required of a foreign corporation to guarantee these obligations? What will happen if MATL goes out of business? Who will own the line? Will all of the obligations that MATL is entering into upon building the line transfer to whomever buys it? MATL has received numerous comments suggesting farm machinery can reach 25 feet in height. Has MATL changed their plans to account for this information? What is MATL doing differently? It is reasonable to expect that farm equipment will be used under the line that will require 20 to 25 feet of clearance. Current air drills have a travel height of 19 feet. The current models are not large enough to be of economic use on our property. We expect that larger equipment will be available in the future, but we will use it. If further restrictions, i.e., limiting equipment height under the line on

Comment 154
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Comment 159

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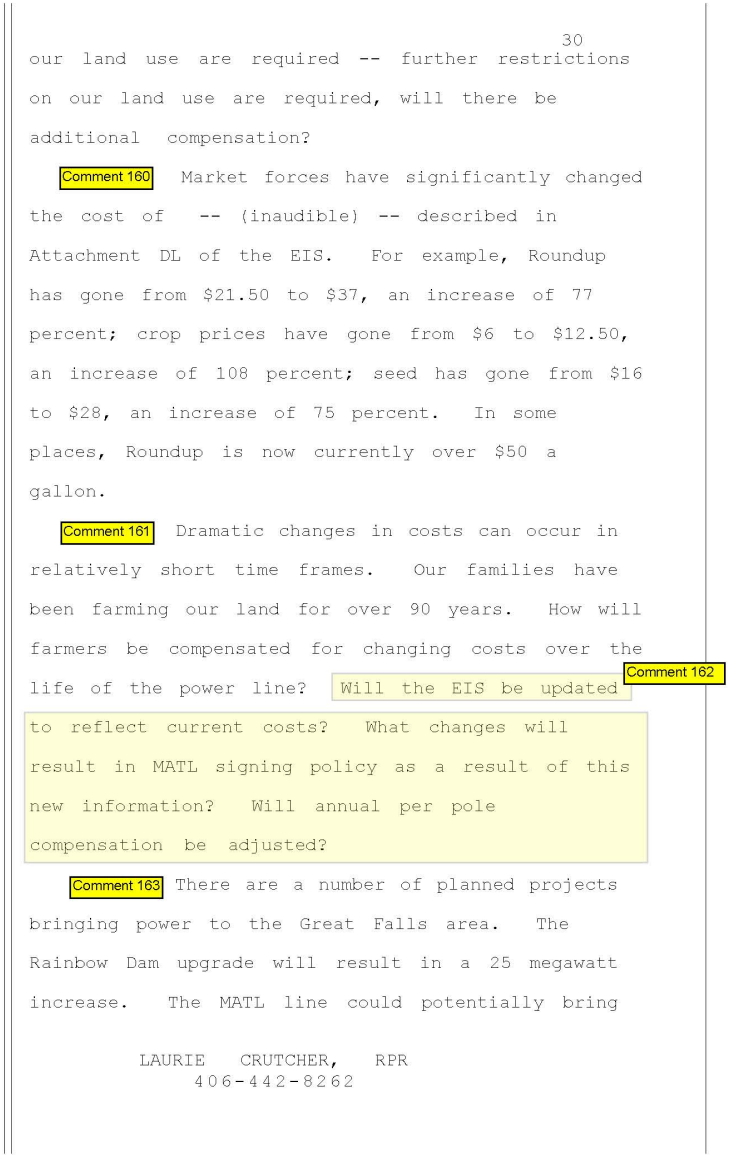
Response 154: See Farming Issues in the Consolidated Responses section. In addition, Section 2.3 has been changed in the EIS to provide information regarding MATL's compensation and alternative dispute resolution process.

Response 155: See the discussion in Legal and Regulatory Issues in the Consolidated Responses section.

Response 156: DEQ's administrative rules, ARM 17.20.1902(10), allow the department to hold a bond and monitor reclamation for up to 5 years. Also see the response to comment 49.

Response 157: Yes. All commitments MATL makes to the agencies would transfer to any new owner of the line. The commitments made to landowners may transfer depending on the arrangement made between MATL and the landowner.

Response 158 and 159: Yes, MATL has changed its proposal to reflect comments about minimum ground clearance in cultivated areas. See the discussion of Safety Issues in the Consolidated Responses section. MATL's current proposal for ground clearance is described in Section 2.3. The certificate would specify that MATL must comply with the National Electrical Safety Code.



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our land use are required -- further restrictions on our land use are required, will there be additional compensation?

Comment 160 Market forces have significantly changed the cost of -- (inaudible) -- described in Attachment DL of the EIS. For example, Roundup has gone from $21.50 to $37, an increase of 77 percent; crop prices have gone from $6 to $12.50, an increase of 108 percent; seed has gone from $16 to $28, an increase of 75 percent. In some places, Roundup is now currently over $50 a gallon.

Comment 161 Dramatic changes in costs can occur in relatively short time frames. Our families have been farming our land for over 90 years. How will farmers be compensated for changing costs over the life of the power line? Will the EIS be updated to reflect current costs? What changes will result in MATL signing policy as a result of this new information? Will annual per pole compensation be adjusted?

Comment 162

Comment 163 There are a number of planned projects bringing power to the Great Falls area. The Rainbow Dam upgrade will result in a 25 megawatt increase. The MATL line could potentially bring

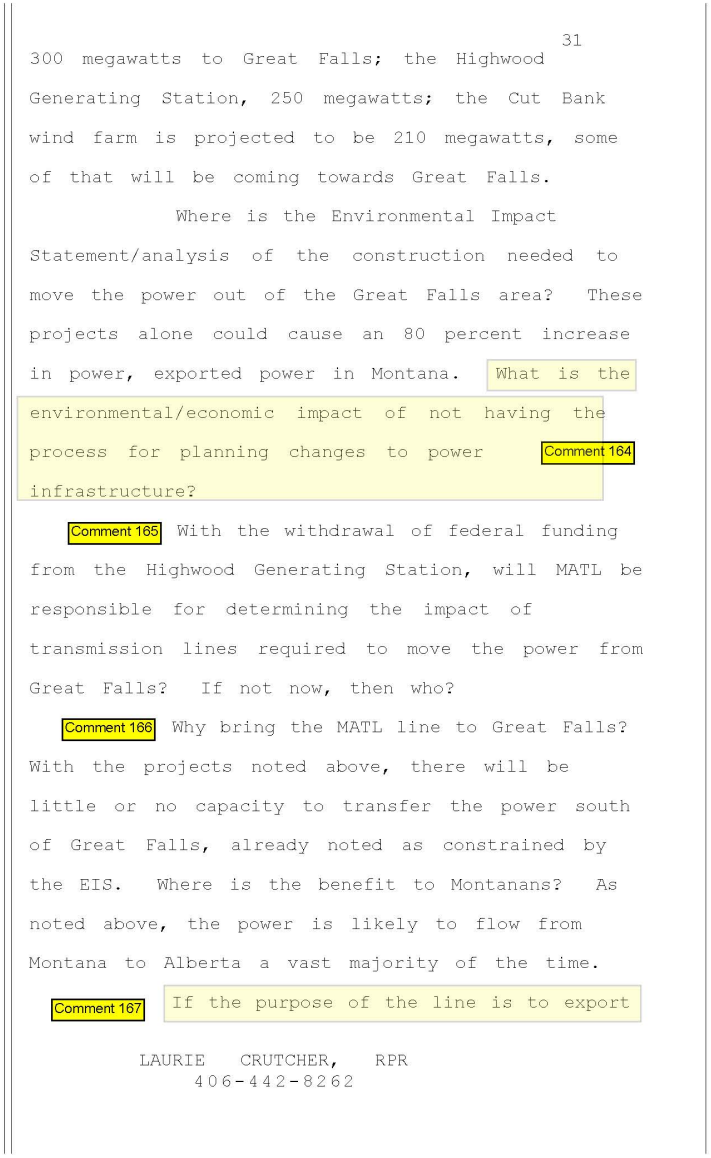
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Response 160: See the discussion of Farming Issues in the Consolidated Responses section; Section 3.13; and Appendix N.

Response 161: See Section 3.13.3.2 for a description of how farmers would be compensated over the life of the project. See Section 2.3 for a description of MATL's revised compensation package and alternative dispute resolution process.

Response 162: Section 3.13.3.2 has been updated to include farming costs as of early 2008.

Response 163: Because the proposed MATL line would not depend on additional transmission capacity south or west out of Great Falls, and there are no proposals before the agencies to increase such transmission capacity, the construction of additional transmission capacity south or west of Great Falls is not within the scope of this EIS. However, the potential impacts of some of the activities mentioned in the comment are considered in the cumulative impacts analysis in Section 4.



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300 megawatts to Great Falls; the Highwood Generating Station, 250 megawatts; the Cut Bank wind farm is projected to be 210 megawatts, some of that will be coming towards Great Falls.

Where is the Environmental Impact Statement/analysis of the construction needed to move the power out of the Great Falls area? These projects alone could cause an 80 percent increase in power, exported power in Montana. What is the environmental/economic impact of not having the process for planning changes to power infrastructure? Comment 164

Comment 165 With the withdrawal of federal funding from the Highwood Generating Station, will MATL be responsible for determining the impact of transmission lines required to move the power from Great Falls? If not now, then who?

Comment 166 Why bring the MATL line to Great Falls? With the projects noted above, there will be little or no capacity to transfer the power south of Great Falls, already noted as constrained by the EIS. Where is the benefit to Montanans? As noted above, the power is likely to flow from Montana to Alberta a vast majority of the time.

Comment 167 If the purpose of the line is to export

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Response 164: One possible result of poorly coordinated and sized projects might include building two undersized lines rather than a single line large enough to handle anticipated generation projects.

Response 165: MATL would not be responsible for determining how power would be moved out of Great Falls unless it chooses to consider another business venture to address such a need. Under FERC regulations, generators submit interconnection requests to the operators of transmission systems and then the transmission operator addresses these requests. NorthWestern Energy operates transmission lines southeast, south, and southwest out of Great Falls. Independent, non-utility transmission service providers also hold open seasons to solicit customers for new transmission projects.

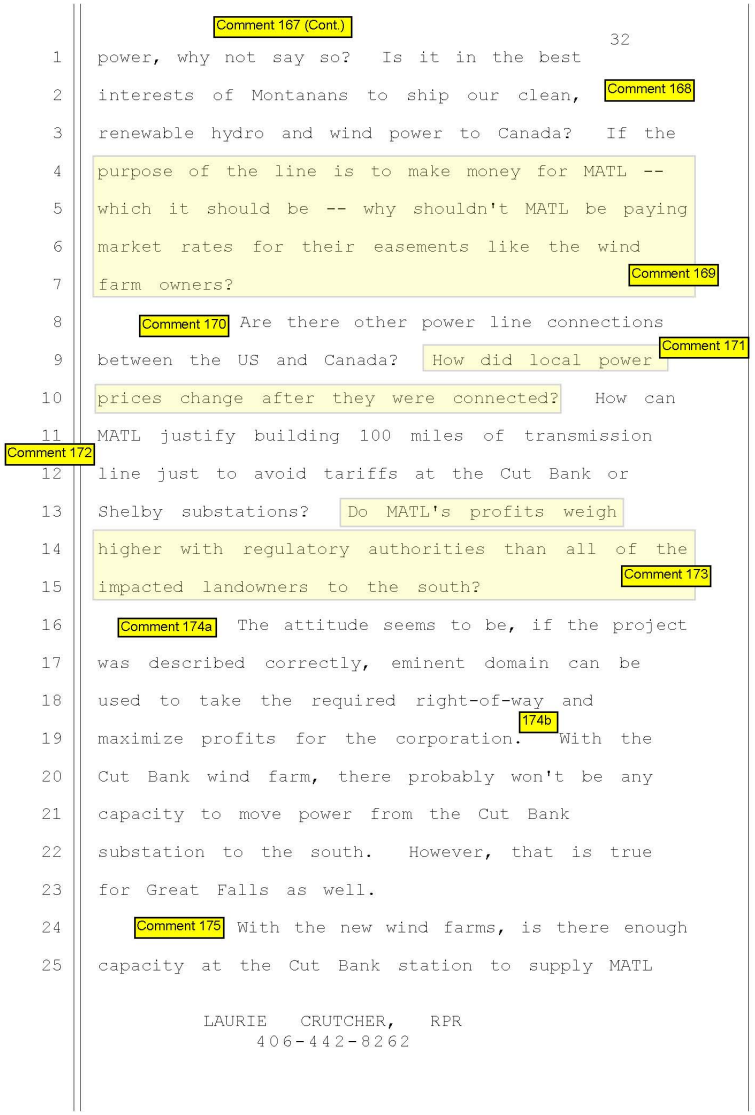
Response 166: MATL justifies building the line down to Great Falls in several different ways—not just based on additional tariffs. With agreed upon upgrades, MATL's shippers would be able to move some power south out of Great Falls, especially on a non-firm basis (where moving power is allowed during those times when there is room on the line). As stated in Section 1.2.1, "The purpose for the proposed MATL transmission line is to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists), provide access to potential markets for new and existing power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources." Great Falls is the most feasible connection point economically and from an engineering perspective. See Section 2.8 for a

more detailed discussion on why terminating the line at Shelby would not be feasible.

The system south and west-bound from Great Falls is contractually congested in that parties have pre-existing rights on the lines, but these parties do not necessarily use their full rights. When these rights are not fully used, the capacity could be used by other shippers.

Response 167: The need for the line is outlined in Chapter 1. The purpose of the line is to provide a path to transmit power between Lethbridge and Great Falls. Power can flow in either direction on the line. Although the purpose of this line is stated to increase transfer capacity and allow for new energy development, the line could be used by utilities and other entities to make purchases and sales on the spot market (short-term non-firm transactions might occur on the spot market when the wind is not blowing or when a wind farm holding a firm contract with MATL is not fully exercising its rights). Such transactions would be limited by the amount of firm and non-firm power left over on the line after the firm contract obligations are met.

The Mid Columbia trading hub (Mid-C) is a commonly used location where electricity prices in the Pacific Northwest are compared. Electricity prices are higher in Alberta than in Mid-C about 75 percent of the time, so it is possible that some monetary plays could be made on the spot market as a result of this line. This 75 percent figure comes from a paper entitled "Montana Alberta Tie-Line: What are the Economic Benefits to Alberta?" by Aidan Hollis, Department of Economics, University of Calgary, ahollis@ucalgary.ca . This paper states that "when there is a price difference between two markets, there is generally an economic inefficiency. It means that there are buyers in the lower priced market who would be willing to sell into the higher priced market just below the prevailing higher price, and buyers in the higher-priced market who would be willing to buy at that price. If they were to undertake such a transaction, both parties would benefit. The same applies in electricity markets, and the benefits accrue to parties in both jurisdictions, regardless of which one has the higher price" (p. 6). The paper also states on page 7 that "given, as discussed above, the likely increase in prices in Alberta in the near future, it appears that there will continue to be ample scope for imports of Mid-C priced electricity." Page 8 states that "on days when prices are higher in Alberta, we would expect imports into Alberta from Montana, if the MATL tie-line were available." The reason for this is that importing electricity from Montana could make Alberta electricity prices lower on certain days as Alberta could avoid using some of its highest cost generation. This same gain from lower prices could happen in Montana when Alberta prices are lower than Montana prices. However, the amount of Montana-generated electricity that could flow up to Alberta is limited by the relatively small size of the line (300 MW) and would be a small portion compared to the amount of electricity Montana generates each year (about 3,000 MW) and exports each year (over 1,000 MW). Much of the time, a large portion of MATL's 300 MW would be used for firm commitments from generators rather than for trading opportunities. The paper also states that both Alberta and Montana could benefit from the MATL line since it would result in less of a chance of volatile spot market prices as well as less of a chance of electricity suppliers using their market share to increase prices. Also see the response to comment 166.



Comment 167 (Cont.)

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power, why not say so? Is it in the best interests of Montanans to ship our clean, renewable hydro and wind power to Canada? If the purpose of the line is to make money for MATL -- which it should be -- why shouldn't MATL be paying market rates for their easements like the wind farm owners? Are there other power line connections between the US and Canada? How did local power prices change after they were connected? How can MATL justify building 100 miles of transmission line just to avoid tariffs at the Cut Bank or Shelby substations? Do MATL's profits weigh higher with regulatory authorities than all of the impacted landowners to the south? The attitude seems to be, if the project was described correctly, eminent domain can be used to take the required right-of-way and maximize profits for the corporation. With the Cut Bank wind farm, there probably won't be any capacity to move power from the Cut Bank substation to the south. However, that is true for Great Falls as well. With the new wind farms, is there enough capacity at the Cut Bank station to supply MATL

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Comment 168

Comment 169

Comment 170

Comment 171

Comment 172

Comment 173

Comment 174a

174b

Comment 175

Response 168: The need for the line is outlined in Chapter 1. See the response to comments 166 and 167. The state has no legal control over where electricity produced in Montana goes. Also see Economic Issues in the Consolidated Response section.

Response 169: See the discussion in Legal and Regulatory Issues in the Consolidated Responses section.

Response 170: Currently there are 79 Presidential permits that have been granted for transmission lines that cross the U.S.-Canadian border.

Response 171: DOE has no information on the effect that international transmission lines have on local power prices. Local (retail) electricity rates are established and regulated at the state level.

Response 172: In the MFSA application, MATL documented a number of factors it considered in reaching the conclusion that it was not feasible to terminate its project at either the Glacier Electric substation near Cut Bank or the Western Area Power Administration (WAPA) substation near Shelby. These factors included:

(a) The addition of the WAPA tariff would almost double the total tariff paid by MATL shippers,

(b) The NorthWestern 115kV line from Cut Bank to Great Falls has a maximum capacity of 130 MW under the best conditions and already carries electricity for other customers,

(c) The WAPA 230kV line from Shelby to Conrad and from Conrad to Great Falls has a capacity of 240 MW under the best conditions. Further, all of the WAPA lines in the region have firm commitments for available capacity.

Response 173: The DEQ Director will consider information in MATL's application and the EIS, including public comment and agency responses, when making the findings required in 75-20-301, MCA, before the project could move forward. Section 3.18 describes the information considered by DEQ to approve a transmission line facility. The findings will be made in the record of decision.

Response 174a: See the discussion of eminent domain in Legal and Regulatory Issues of the Consolidated Responses. While the Major Facility Siting Act provides the procedure for obtaining approval to construct a major facility, including electric transmission lines, it does not provide a procedure for acquiring property on which to construct the facility. The property must be obtained through negotiations between a project sponsor and a landowner or if negotiations are not successful, a condemnation proceeding under the laws of eminent domain may be used.

Eminent domain may only be exercised if the purpose for which it is being exercised is a public use. Those public uses are identified and listed by the Legislature in Section 70-30-102, MCA. Subsection 37 of that statute lists electrical power lines as a public use. Section 70-30-102, MCA, does not distinguish between electrical power lines built by private enterprise and a publicly owned utility. Before private property can be taken, Section 70-30-111, MCA, requires the condemner to demonstrate that the public interest requires the taking based on the following findings:

1. the use to which the property is to be applied is a use authorized by law;

2. the taking is necessary to the use;

3. if already being used for a public use, that the public use for which the property is proposed to be used is a more necessary public use; and

4. an effort to obtain the property interest sought to be taken was made by submission of a written offer and the offer was rejected.

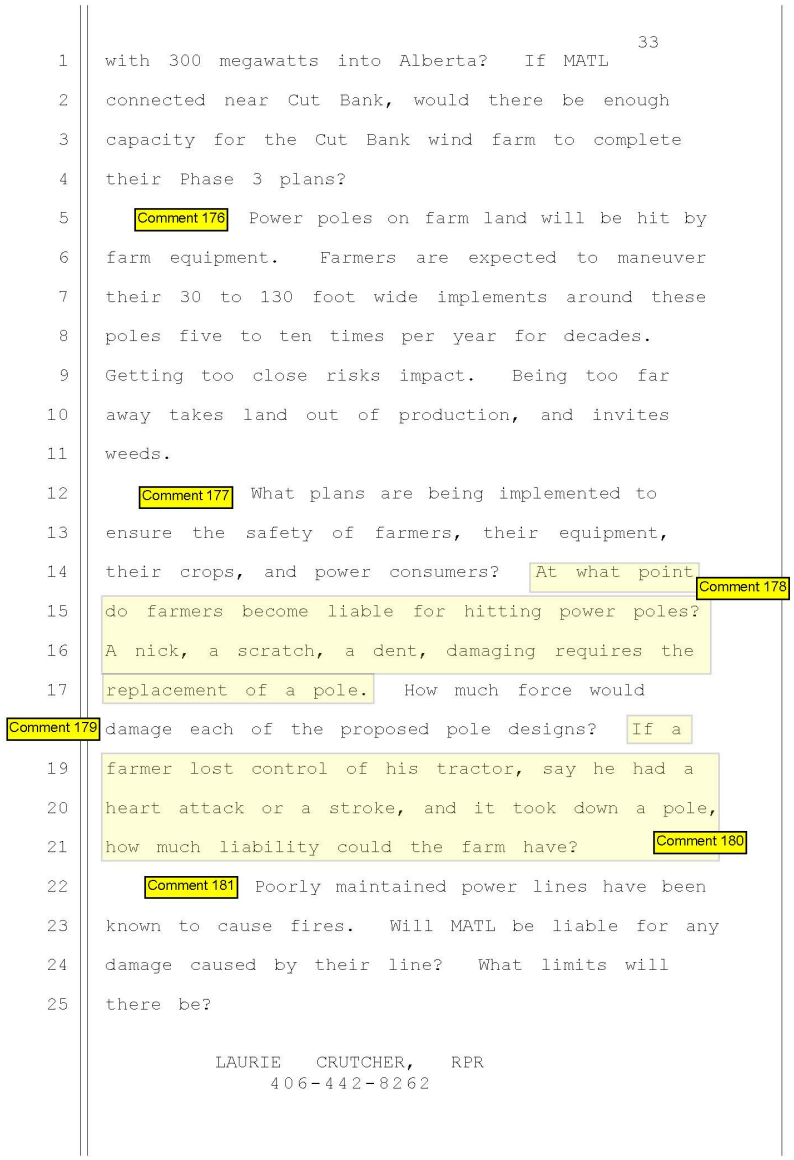
As indicated above, an electric transmission line is a use for which condemnation is authorized by law. In regard to whether the taking is necessary, Montana courts have determined that the necessity need not be absolute or indispensable. Rather, a taking is necessary if it "is reasonable, requisite, and proper for the accomplishment of the end in view, under the particular circumstances of the case." As indicated in Section 3.17, DEQ has determined the necessity of the electric transmission line proposed by MATL.

As indicated in the handbook entitled Eminent Domain in Montana published by the Legislative Environmental Policy Office in May of 2001, "[a] public use does not have to be a project that directly benefits the entire public or even the landowner whose property is taken through eminent domain. It may be a project that benefits Montana citizens as a whole through greater economic development or increased access to communications." As stated by the

Montana Supreme Court in Ellinghouse v. Taylor (1897), 19 Mont. 462, 48 P. 757, "Persons have been allowed the right of eminent domain on the theory of public use, in the construction of dams for the operation of grist and saw mills, in the reclamation of swamp lands, and in other similar instances that might be enumerated where the public had no direct interest in these operations, whose main end was mere private gain, and where the benefit to the people at large could result indirectly and incidentally only from the increase of wealth and development of natural resources.

Response 174b: With agreed upon upgrades to the NorthWestern system, MATL's customers will be able to move some power south out of Great Falls, especially on a non-firm basis (where moving power is allowed during those times when there is room on the line).

Response 175: The MATL line is not proposed to connect to the Cut Bank substation. MATL is proposing to build a new substation. See Section 2.3.



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with 300 megawatts into Alberta? If MATL connected near Cut Bank, would there be enough capacity for the Cut Bank wind farm to complete their Phase 3 plans?

Comment 176 Power poles on farm land will be hit by farm equipment. Farmers are expected to maneuver their 30 to 130 foot wide implements around these poles five to ten times per year for decades. Getting too close risks impact. Being too far away takes land out of production, and invites weeds.

Comment 177 What plans are being implemented to ensure the safety of farmers, their equipment, their crops, and power consumers? At what point do farmers become liable for hitting power poles? A nick, a scratch, a dent, damaging requires the replacement of a pole. How much force would damage each of the proposed pole designs? If a farmer lost control of his tractor, say he had a heart attack or a stroke, and it took down a pole, how much liability could the farm have?

Comment 178

Comment 179

Comment 180

Comment 181 Poorly maintained power lines have been known to cause fires. Will MATL be liable for any damage caused by their line? What limits will there be?

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Response 176: See the discussion of Farming Issues in the Consolidated Responses section.

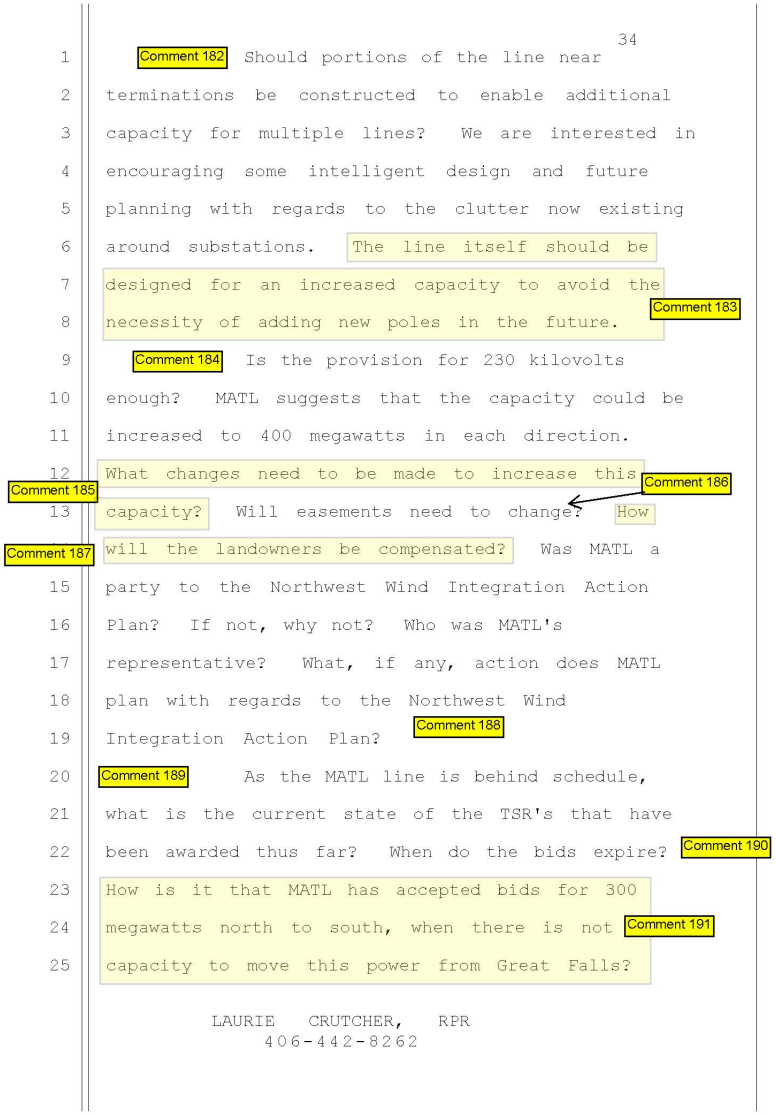
Response 177: See the discussion in Safety Issues in the Consolidated Responses section.

Response 178: A farmer may be liable if damage was caused by an intentional act of the farmer or by the farmer's negligence in farming around the pole. The easement agreement between MATL and the landowner would have terms that would absolve the landowner of all liability for accidental damage to MATL's facilities. A nick, scratch or dent caused by the farmer would be de minimis damage and not justify replacement of the pole.

Response 179: It depends where and how this force is applied. The transmission structures are designed to meet NESC Medium loading, NESC 50-year return period wind loading (144 km/hr), 50mm radial wet snow with 70 km/hr wind, rime (in-cloud) ice (40mm radial ice) loading, broken OPGW loading as well as construction loads. These are very strong structures that would require a lot of force to bring them down.

Response 180: See response to comment 178.

Response 181: See the discussion of Farming Issues in the Consolidated Responses section. MATL may be responsible for damages resulting from a fire if the fire was caused by MATL's negligence in designing, constructing, operating or maintaining the transmission line.



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Comment 182 Should portions of the line near terminations be constructed to enable additional capacity for multiple lines? We are interested in encouraging some intelligent design and future planning with regards to the clutter now existing around substations. The line itself should be designed for an increased capacity to avoid the necessity of adding new poles in the future. Comment 183

Comment 184 Is the provision for 230 kilovolts enough? MATL suggests that the capacity could be increased to 400 megawatts in each direction. What changes need to be made to increase this capacity? Will easements need to change? How will the landowners be compensated? Was MATL a party to the Northwest Wind Integration Action Plan? If not, why not? Who was MATL's representative? What, if any, action does MATL plan with regards to the Northwest Wind Integration Action Plan?

Comment 185 Comment 186 Comment 187 Comment 188

Comment 189 As the MATL line is behind schedule, what is the current state of the TSR's that have been awarded thus far? When do the bids expire? Comment 190

How is it that MATL has accepted bids for 300 megawatts north to south, when there is not capacity to move this power from Great Falls? Comment 191

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Response 182: The agencies are considering the possibility of MATL building double circuit structures for about 4.2 miles north of the Great Falls switchyard. Lines for one circuit would be constructed now and used by MATL, and space on the structures would be available for a second circuit. The future circuit could be used by a firm other than MATL.

Response 183: See the discussion of Line Capacity Issues in the Consolidated Responses.

Response 184: The proposed line would be large enough for MATL's current customers. If all the possible wind and other generation that might be built in the area were actually constructed, the proposed line would not be large enough. See the discussion of Line Capacity Issues in the Consolidated Responses.

Response 185: See the discussion of Line Capacity Issues in the Consolidated Responses.

Response 186: Transmission of up to 400 MW in each direction would not require any changes in the proposed easements.

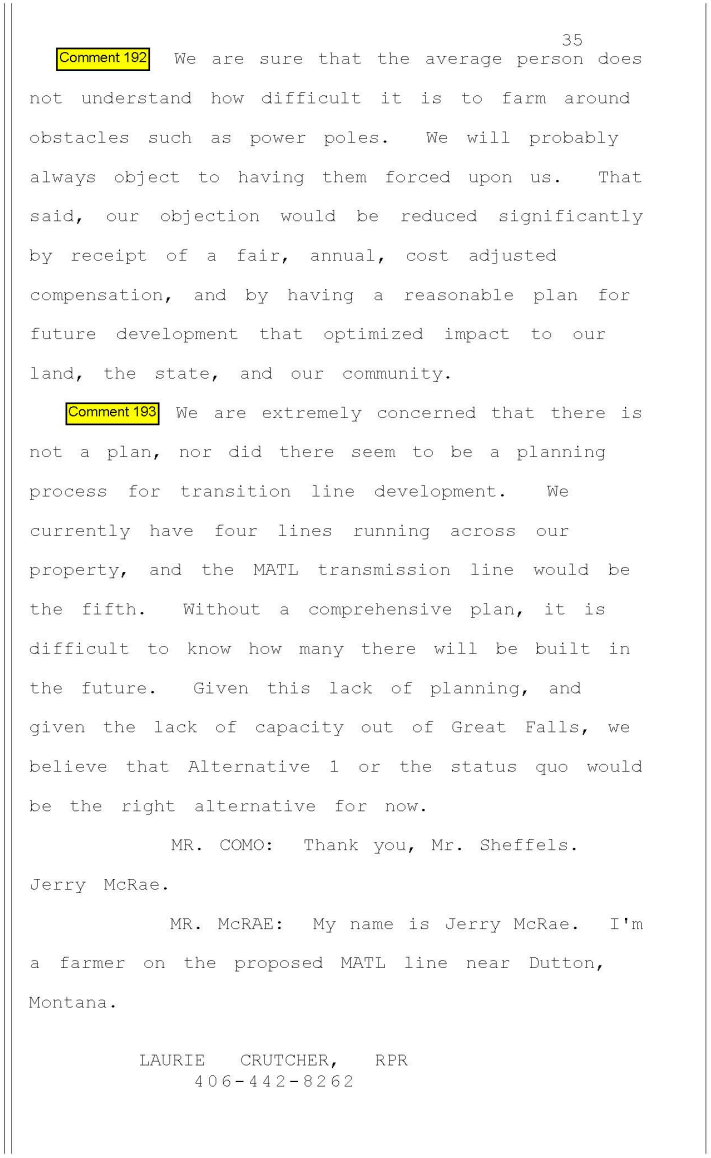
Response 187: Compensation to landowners would be based on the physical size of the transmission line, not on the amount of electricity transmitted on the line. Similarly, compensation to landowners for construction of a highway is based on the acreage required for the highway, not on the traffic volume.

Response 188: MATL was not a party to the Northwest Wind Integration Plan. MATL is a party to the Montana Wind Working Group and has contributed funding towards wind modeling as directed by the working group. MATL decided to participate in the Montana Wind Working Group because that group is focused on Montana whereas the Northwest Wind Integrated Plan is focused on the Pacific Northwest.

Response 189: MATL's transmission service request (TSR) contracts accommodate the current schedule for construction of the transmission line either explicitly or in side agreements. The MATL line would provide a conduit for power transmission between two points. It is the responsibility of the contracting shipper to make the necessary commercial arrangements and ensure the capacity exists to get power to the MATL line and to ship it from the line terminus to the intended customer.

Response 190: The bids submitted by prospective shippers did not include expiration dates. Bids were either accepted or rejected at the conclusion of the capacity auction process. Contracts were executed with the successful bidders (Williams 2008c)

Response 191: See response to comment 189.



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Comment 192 We are sure that the average person does not understand how difficult it is to farm around obstacles such as power poles. We will probably always object to having them forced upon us. That said, our objection would be reduced significantly by receipt of a fair, annual, cost adjusted compensation, and by having a reasonable plan for future development that optimized impact to our land, the state, and our community.

Comment 193 We are extremely concerned that there is not a plan, nor did there seem to be a planning process for transition line development. We currently have four lines running across our property, and the MATL transmission line would be the fifth. Without a comprehensive plan, it is difficult to know how many there will be built in the future. Given this lack of planning, and given the lack of capacity out of Great Falls, we believe that Alternative 1 or the status quo would be the right alternative for now.

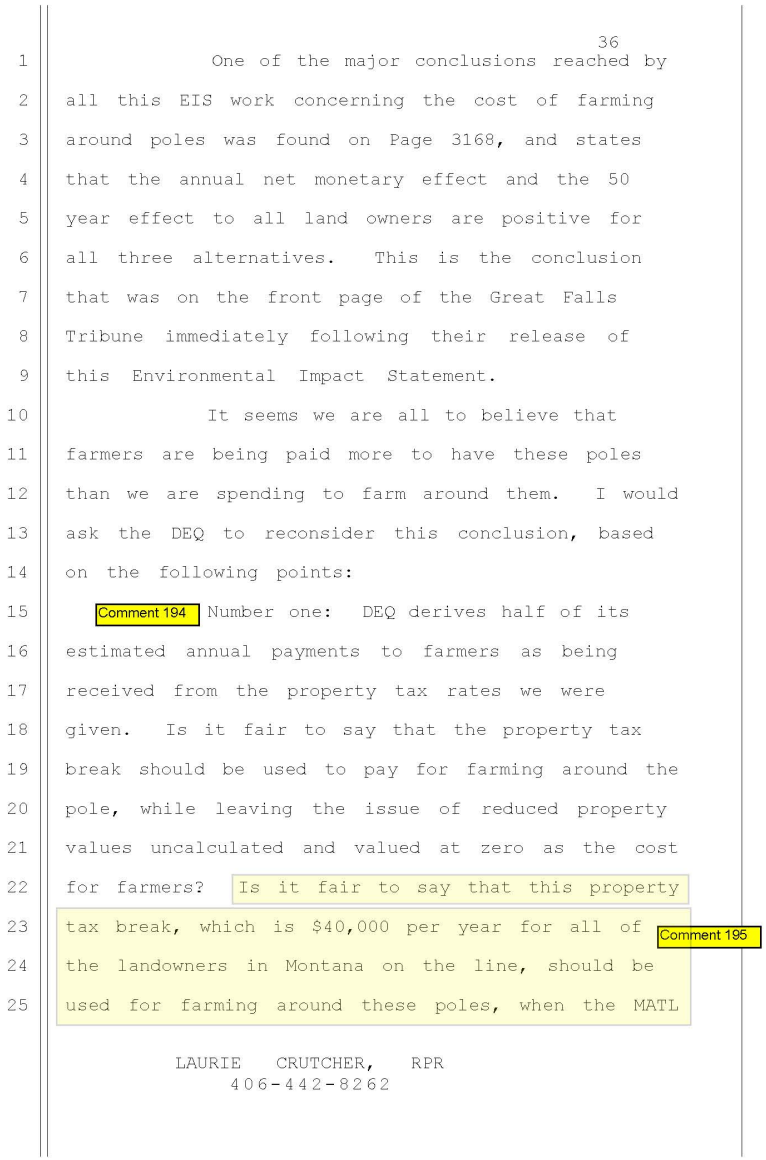
MR. COMO: Thank you, Mr. Sheffels. Jerry McRae.

MR. McRAE: My name is Jerry McRae. I'm a farmer on the proposed MATL line near Dutton, Montana.

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Response 192: MATL has updated its proposal regarding compensation. It now includes an alternative dispute resolution process. See Section 2.3.

Response 193: No comprehensive transmission planning process exists in Montana. MATL complied with the FERC process. Individual processes include but are not limited to: the Northern Tier Transmission Group, Integrated Resource Plans required of NorthWestern Energy and Montana Dakota Utilities, and other independent multi-state efforts such as the Rocky Mountain Area Transmission Study. Montana law does not require a comprehensive plan for the grid. Projects, both generators and transmission lines, are built in response to growing demands. These patterns of growth vary geographically and over time. Transmission planners within and between these geographic areas propose new projects in response to these changing demands as needed. Thus, it is difficult to say what the transmission grid will look like in the future.



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One of the major conclusions reached by all this EIS work concerning the cost of farming around poles was found on Page 3168, and states that the annual net monetary effect and the 50 year effect to all land owners are positive for all three alternatives. This is the conclusion that was on the front page of the Great Falls Tribune immediately following their release of this Environmental Impact Statement.

It seems we are all to believe that farmers are being paid more to have these poles than we are spending to farm around them. I would ask the DEQ to reconsider this conclusion, based on the following points:

Comment 194 Number one: DEQ derives half of its estimated annual payments to farmers as being received from the property tax rates we were given. Is it fair to say that the property tax break should be used to pay for farming around the pole, while leaving the issue of reduced property values uncalculated and valued at zero as the cost for farmers? Is it fair to say that this property tax break, which is $40,000 per year for all of Comment 195 the landowners in Montana on the line, should be used for farming around these poles, when the MATL

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Response 194: The effect on property values from the MATL line is discussed in the EIS, Section 3.13.3.2. The effects are expected to be minimal based on available studies of actual property values near transmission lines.

Response 195: What landowners and MATL choose to do with their property tax incentive is beyond the scope of the EIS. The DEQ will balance costs and benefits of all parties in its decision.

property tax break of $800,000 per year is not earmarked to pay for anything but MATL increased costs?

Comment 196 Number two: DEQ has used inaccurate costs for farming around the poles. They're in excess of 100 percent too low, and should be revised in the final EIS. I'm submitting tonight a study just completed by Hydro Solutions, in which Mr. Faringer (phonetic) provides more accurate and fair estimates of the true costs of farming around poles.

Comment 197 DEQ continues to support a 45 foot easement as a workable proposal for MATL. The 45 foot easement will not provide the necessary safety zone required, and it does not provide enough work room to complete the construction. MATL is required to obtain the full 105 foot easement on the Canadian portion of the line. Farmers in Montana should not have to continue to fight for the same 105 foot deal.

Comment 198 DEQ has underestimated the environmental impact caused by the lack of access to the project when it runs so much diagonal line. DEQ continues to support the idea that this is construction -- that there is construction access from field roads

Response 196: The farming cost estimates have been revised to reflect recent costs of inputs and commodity prices. See Farming Issues in the Consolidated Responses section and revisions to Section 3.13 and Appendix N.

Response 197: MATL has revised its proposal to use a 105-foot easement.

Response 198: As discussed in Chapter 2 of the EIS, much of the construction equipment would move along the right-of-way as construction proceeds because so much of the project area consists of relatively level ground. Existing roads would be used to the extent practicable and in a few areas, such as on the south side valley wall of the Teton River, MATL proposes to construct a total of about 3.5 miles of new roads on Alternative 2 since the moderately steep side hill will not allow safe movement of construction vehicles. Alternative 3 would require about 3.8 miles of new roads and Alternative 4 about 7.6 miles of new roads.

MATL might also have to purchase some off-right-of-way access to avoid sensitive features. Typically equipment can move on side slopes up to about 5 to 7 percent. On very steep slopes such as the cliff on the north side of the Marias River and at the Teton River crossing there would be no through access. In these areas access to structures would be from each direction with a skip in the middle.

Temporary and permanent roads or trails might need to be used to allow for construction and maintenance of the transmission line. The location of these features can only be precisely determined after the centerline is selected and the siting of individual structures has been determined through detailed design including consultation with landowners to minimize impacts. Wherever temporary or permanent roads are constructed, the landowner would be fully compensated on the basis of loss of use, general disturbance, and adverse effect.

in from fields. Field roads are not diagonal, and they're private roads. A diagonal line runs six to eight miles with no access to reach county roads in the Dutton area.

Comment 199 The destruction of soil by compaction, grass land by destruction of native sod, erosion to all coulee crossings by the number of trips necessary to construct the line between county roads is inaccurate, should be reconsidered and restated.

Comment 200 Once again, field roads -- which are essentially just a trail of two tracks -- are private property, and not public access.

Comment 201 The height above the ground that MATL is proposing to build this line at does not meet safety standards. Drain carts with the augers in field positions, trucks with the boxes raised filling air drills, are just a couple of examples of equipment which will operate in excess of 20 feet in height, way above the 14 foot maximum height that MATL continues to use.

Comment 202 Building taller for just some farmers means unsafe height allowances whenever the land is sold or leased to a farmer whose taller equipment must have the higher allowance. A safe

Response 199: See the discussion of Soils Issues in the Consolidated Responses section.

Response 200: Comment noted. MATL would have to obtain easements for use of off right-of-way field roads.

Response 201 and 202: MATL has changed its proposal regarding minimum ground clearance. For more information, see the discussion of Safety Issues in the Consolidated Responses section.

line should be the only choice for MATL to build in all locations.

Comment 203 For all of you who are here to support the economic value associated with building this line, please understand that as a land owner, I can join with you in applauding economic progress in our state. You should know that MATL continues to propose paying the farmer a one time payment, once in my life, once in my farm's history, $500 per structure. That is the easement payment, $500 once. Then they're willing to pay the farmer $59.08 per structure on an annual basis to help us farm around the poles. The cost of going around the poles is at least $250. $59.08 doesn't cut it. This offer is just completely unacceptable.

Comment 204 Please join me as a farmer in asking MATL to present landowners with a realistic offer for the use of our land. Thank you.

MR. COMO: John Shevlin.

MR. SHEVLIN: John Shevlin, S-H-E-V-L-I-N. I come before you tonight as the Mayor of Conrad, Montana, also a business man, owner in Conrad. I would like to thank you for the opportunity of speaking tonight.

Comment 205 As Mayor of Conrad, I strongly support

Response 203 and 204: Comments noted. MATL has updated its proposal regarding compensation. It now includes an alternative dispute resolution process. See the EIS, Sections 2.3 and 3.13.3.2.

Response 205: Comment noted. Economic impacts and benefits of the proposed transmission line and potential wind farms are discussed in the EIS, Sections 3.13 and 4.14. Also see the discussions of Economic Issues and Socioeconomic Issues in the Consolidated Responses section.

the Montana-Alberta Transmission Line. The economic benefits to our community would be very substantial. Benefits from the line and resulting wind farms would go a long way in easing the tax burden on our county and city levels. An example would be the large infusion of tax money from the Judith Gap wind farm.

Comment 206 Due to unemployment, permanent workers with families and children would relocate to our area. This would greatly help our school system. Currently the school system is looking at remodeling the local high school and elementary school. The additional tax money would ease the burden on existing taxpayers.

Comment 207 In this area, we do not get a lot of opportunities for economic development. When the projects like the MATL line and wind farms come along, they should be embraced and supported by the whole community.

Comment 208 I would like to take this opportunity to encourage both the land owners and MATL to come to some kind of a conclusion to make this work for everybody involved, and the DEQ and the DOE to give favorable status to this project. Thank you very much.

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Response 206 and 207: See the response to comment 205.

Response 208: Comment noted.

MR. COMO: Thank you. Peggy Beltrone.

Comment 209 MS. BELTRONE: Thank you, Mr. Como and Mr. Ring. I'm Peggy Beltrone. I rise as yet another County Commissioner to represent the County, along with MATL line group. I'm a Cascade County Commissioner. I'm here tonight on behalf of Lance Olson and Joe Griggs, my co-workers, my co-Commission mates, if you will, who are also in support of this line.

Comment 210 I would like to urge an expedited process. I've been concerned about this process and the delays that have occurred, and I would like for both the Department of Energy and the Department of Environmental Quality to redouble its efforts in getting to a solution here. We understand that there are outstanding issues between the company and the landowners, and we would like to see those resolved, but more than anything --

(End of side one)

Comment 211 Ms. BELTRONE: I just want to emphasize the fact that many projects are relying on a short time frame, and these wind projects that would be hooked up to the MATL line are also on that time frame. And as a member of the steering committee

Response 209: Comment noted.

Response 210: The agencies are working as rapidly as possible under the circumstances.

Response 211: Comments noted.

for Wind Power in America, which is the Department of Energy's program to promote wind in this country, I know how important it is for these projects to go forward.

Comment 212 We have in this country 17,000 megawatts of wind installed. Last year 5,000 megawatts were installed, making us the leading country in the world for installing in one year wind energy. We have only have 140 megawatts of wind in Montana. And so I have seen, over the years being involved in this program, other states with far less wind resource than Montana expand its wind portfolio much faster, and the reason is transmission.

Comment 213 I've been involved in the Rocky Mountain Area Transmission Study, and I've been involved in the government, the Western Governments Association Clean Energy Advisory Committee. In both of those instances, I have learned how important it is that transmission be sited so that we can get these valuable wind resources to market.

Comment 214 We have many compelling reasons in the west to have wind energy, the environmental reasons of saving water, of having no carbon footprint, of having an economic benefit to

Response 212 to 214: Comments noted.

communities. All of these things are important. And I'm afraid that drawn out processes are just going to keep Montana further and further behind in the amount of wind that we are contributing to the nation's energy portfolio. So I appreciate the work that you're doing, and I would just like to have the work done faster.

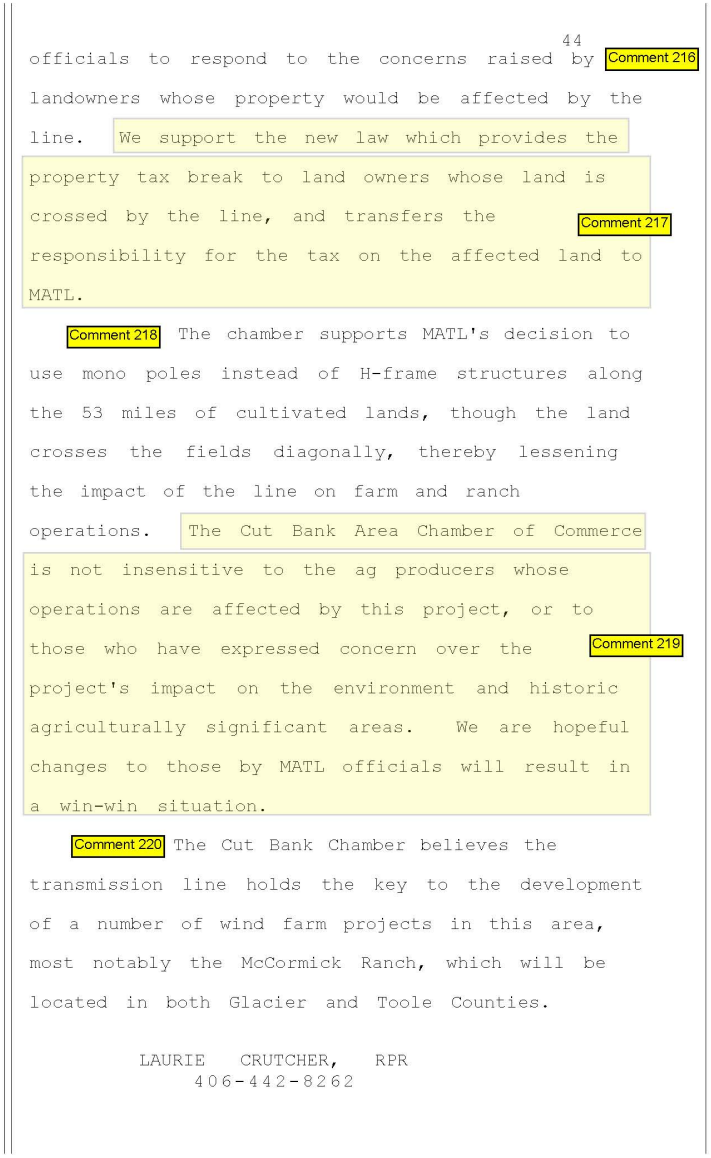
MR. COMO: Thank you. LeAnne Kavanagh.

Comment 215 MS. KAVANAGH: Good evening. My name is LeAnne Kavanagh. I am the President of the Cut Bank Area Chamber of Commerce. My husband and I own newspapers in Cut Bank, Shelby, Browning, and Valier. Thank you for the opportunity to comment on the draft Environmental Impact Statement for the Montana-Alberta Tie Transmission Line.

The Cut Bank Area Chamber of Commerce would like to go on record once again offering its full support for the electric transmission line proposed by Montana-Alberta Tie, Limited. Our organization is approximately 140 members strong, and is dedicated to the promotion of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

We applaud the steps taken by MATL

Response 215: Comment noted.



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officials to respond to the concerns raised by Comment 216 landowners whose property would be affected by the line. We support the new law which provides the property tax break to land owners whose land is crossed by the line, and transfers the Comment 217 responsibility for the tax on the affected land to MATL.

Comment 218 The chamber supports MATL's decision to use mono poles instead of H-frame structures along the 53 miles of cultivated lands, though the land crosses the fields diagonally, thereby lessening the impact of the line on farm and ranch operations. The Cut Bank Area Chamber of Commerce is not insensitive to the ag producers whose operations are affected by this project, or to those who have expressed concern over the Comment 219 project's impact on the environment and historic agriculturally significant areas. We are hopeful changes to those by MATL officials will result in a win-win situation.

Comment 220 The Cut Bank Chamber believes the transmission line holds the key to the development of a number of wind farm projects in this area, most notably the McCormick Ranch, which will be located in both Glacier and Toole Counties.

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Response 216 to 218: Comments noted.

Response 219: See the discussion of Farming Issues in the Consolidated Responses section and information about MATL's revised compensation package in the EIS, Sections 2.3 and 3.13.3.2.

Response 220: Construction of the NaturEner Glacier Wind Project (referred to in the Draft EIS as the McCormick Ranch project) is underway. However, only portions of the former project are being constructed. The agencies understand the project would initially use capacity of existing transmission lines. The agencies understand that additional transmission capacity may be necessary to fully complete the project. NaturEner still holds agreements with MATL for 300 MW of capacity to the north and may build additional wind farms or may market this 300 MW capacity.

Comment 221 The development of wind power is a clean and green renewable energy source that will greatly enhance our stagnant tax base, potentially reducing property taxes for all our residents, whether they be farmers, ranchers, small business owners, or individuals struggling to make ends meet on a fixed income.

Comment 222 Due to the nature of this project, we are well aware the number of permanent jobs created will be limited, but any increase in job opportunities trickle down into our communities by way of increased school enrollment and additional consumer buying power.

Comment 223 Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project, and we urge the Montana DEQ and BLM to issue the needed certificates of compliance and right-of-ways.

MR. COMO: Thank you very much. By the way, what my colleague -- is not the people signing, so the poor penmanship is not the result of the people signing in, so I'm going to butcher this name, too. So it's Sandra B-R-O-E-S-D-E-R.

MS. BROESDER: Hi. May I name is Sandy

Response 221 and 222: Comments noted. Also see the discussion of Socioeconomic Issues in the Consolidated Responses section.

Response 223: Comment noted.

Broesder. I'm a Pondera County Commissioner. I'm also an ag producer.

Comment 224 I have maintained from the first time I heard of this proposed package: This is a line that needs to be built; it's a line that needs to be built right. I think at this point I would probably echo the same issues, the economic potential, growth in our tax base, that my fellow commissioners have urged. I wasn't really planning on speaking tonight. I will have comments for you in Conrad. Thank you.

MR. COMO: Thank you very much. Lewellen Jones.

MR. JONES: Good evening. My name is Lew Jones. I am a representative from House District 27, which is Cut Bank, Conrad, and Shelby.

I'm also a land owner. My family has been involved in agriculture since the 1890s. We have several thousand acres, and we have our share of power poles, and this is nothing new to us. Sometimes we farm in oil fields, and we have lots of power poles.

But that being said, I was also the person who carried the energy bill last session,

Response 224: Comment noted.

and I do want to try to comment on a few items that haven't been touched tonight.

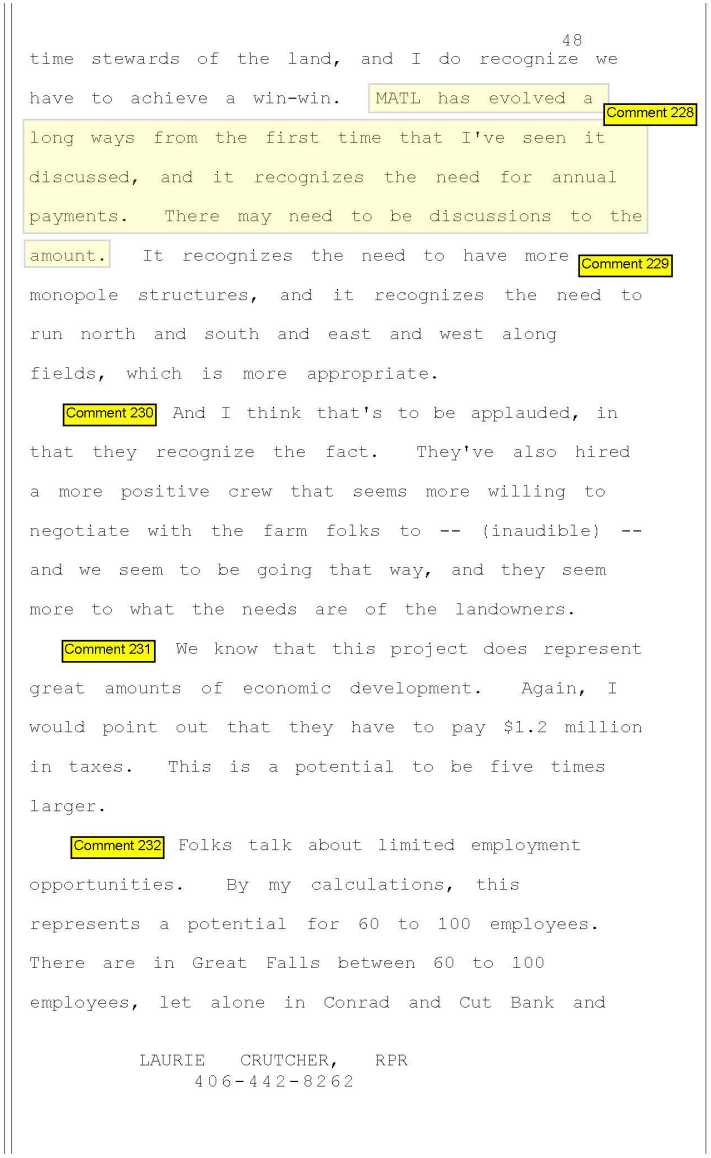
Comment 225 Discussion came along is the energy bill did drop the rate of the lines, new power lines, after June of 2007, from 12 to 3 percent. That leaves it about twice the rate of the surrounding states. 100 percent of zero was zero. And so our concern there was that we weren't having any lines built. In fact, the rate we dropped it to is currently the same rate that all of the co-ops in the state of Montana pay; and given that the co-ops represent about 50 percent of the lines in the state, it is not an unusual rate.

Comment 226 I also was a party to the -- (inaudible) -- where we made the quarter mile strip tax free property under the lines, and to be honest, our intent was in that case to recognize that the value, or the decrease in the value of the property associated with the lines upon that land.

Other items that haven't been touched on. Most folks touched on a lot of things I was going to say, and so I don't feel it necessary to repeat myself.

Comment 227 The greatest respect for the land owners -- obviously this is an ag state -- is the long

Response 225 to 227: Thank you for your insight into the legislative process.



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time stewards of the land, and I do recognize we have to achieve a win-win. MATL has evolved a long ways from the first time that I've seen it discussed, and it recognizes the need for annual payments. There may need to be discussions to the amount. It recognizes the need to have more monopole structures, and it recognizes the need to run north and south and east and west along fields, which is more appropriate.

Comment 228

Comment 229

Comment 230 And I think that's to be applauded, in that they recognize the fact. They've also hired a more positive crew that seems more willing to negotiate with the farm folks to -- {inaudible} -- and we seem to be going that way, and they seem more to what the needs are of the landowners.

Comment 231 We know that this project does represent great amounts of economic development. Again, I would point out that they have to pay $1.2 million in taxes. This is a potential to be five times larger.

Comment 232 Folks talk about limited employment opportunities. By my calculations, this represents a potential for 60 to 100 employees. There are in Great Falls between 60 to 100 employees, let alone in Conrad and Cut Bank and

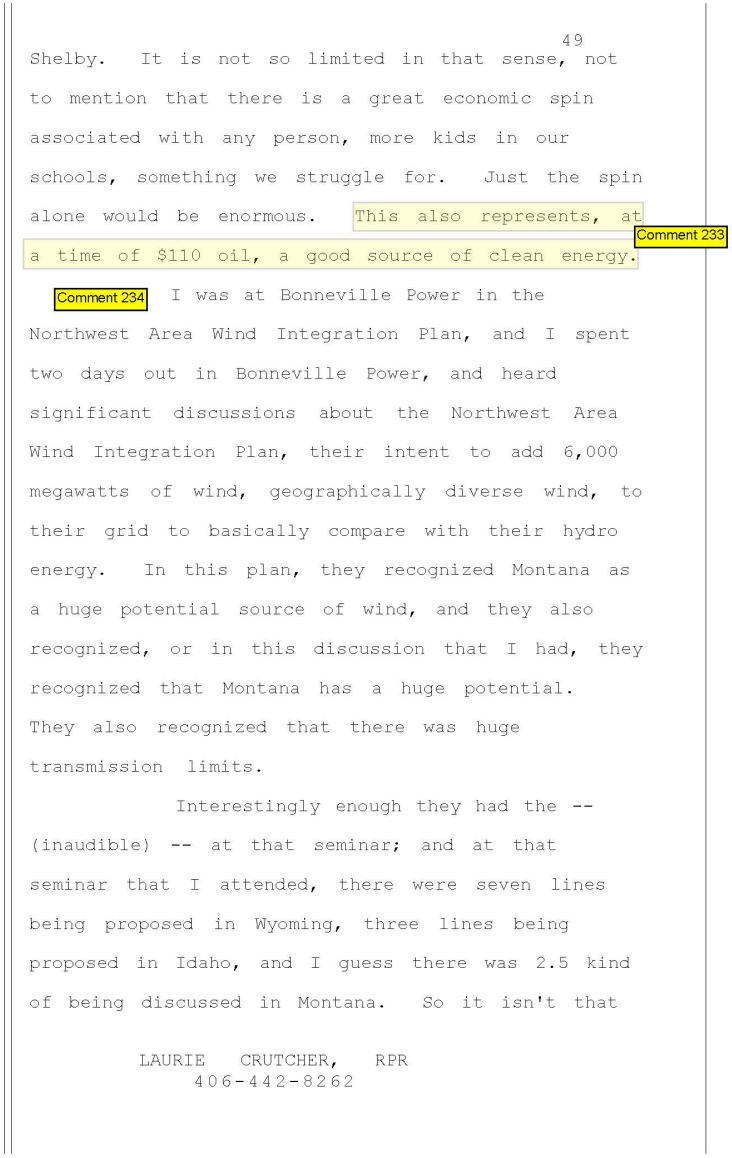
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Response 228: Comment noted.

Response 229: MATL's proposed alternative would use H-frame structures on about 38.4 miles of cropland or CRP crossed parallel or perpendicular to the cropping pattern. See the discussion of Line Issues in the Consolidated Responses section and Sections 2.3 and 3.13.3.2 for information regarding MATL's revised compensation package.

Response 230 and 231: MATL would pay about $700,000 per year in property taxes in Montana under the 3 percent tax rate.

Response 232: Projected employment from the MATL line is in Section 3.13.3.



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Shelby. It is not so limited in that sense, not to mention that there is a great economic spin associated with any person, more kids in our schools, something we struggle for. Just the spin alone would be enormous. This also represents, at a time of $110 oil, a good source of clean energy. Comment 233

Comment 234 I was at Bonneville Power in the Northwest Area Wind Integration Plan, and I spent two days out in Bonneville Power, and heard significant discussions about the Northwest Area Wind Integration Plan, their intent to add 6,000 megawatts of wind, geographically diverse wind, to their grid to basically compare with their hydro energy. In this plan, they recognized Montana as a huge potential source of wind, and they also recognized, or in this discussion that I had, they recognized that Montana has a huge potential. They also recognized that there was huge transmission limits.

Interestingly enough they had the -- (inaudible) -- at that seminar; and at that seminar that I attended, there were seven lines being proposed in Wyoming, three lines being proposed in Idaho, and I guess there was 2.5 kind of being discussed in Montana. So it isn't that

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Response 233: Comment noted.

Response 234: DEQ is aware of early planning efforts to add another 500MW or more of transmission capacity west out of Montana. Some of this capacity may come from improvements to existing lines rather than construction of new lines. No applications for new transmission lines to the Pacific Northwest have been received to date. NorthWestern Energy submitted an application for a new 500 kV line from the Townsend area south into south central Idaho.

The Western Governors Association is also beginning a new transmission planning effort to integrate new generation from renewable resources into the western grid.

Montana is breaking speed records with the creation of power lines. We tend to do stuff as slow as any other state out there.

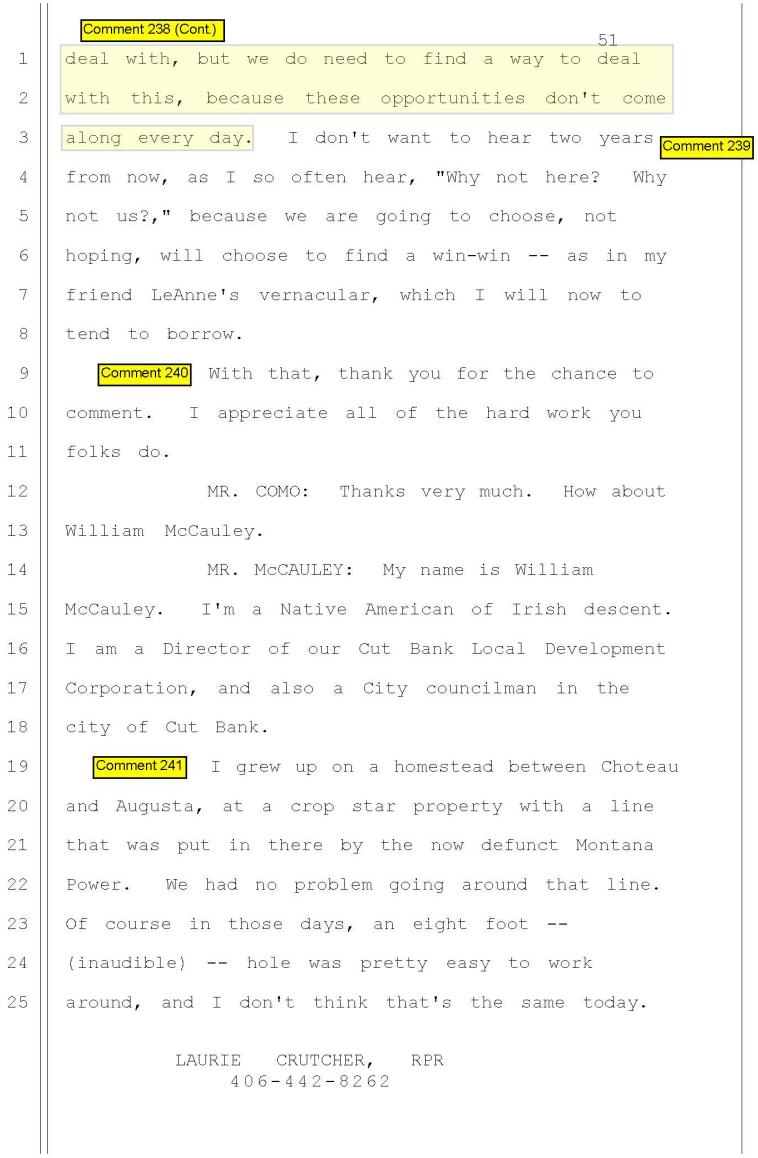
Comment 235 Your know, exports always come up. I'm in the cattle business, the sheep business, the grain business. And we export grain on trucks, on trains. We -- (inaudible) -- to foreign markets. Our Senators and Representatives, I read about it in Japan, I hear about -- (inaudible) -- actually there's a group in China, now that I think about it -- looking at it and surpassing our markets. We do the same with cattle. We see export as a good thing.

Comment 236 Here there is an opportunity to be on line, to export clean, renewable energy, to help us become less dependent, to provide in part the potential and the structure, the tax paying structure in employment -- (inaudible) -- in Montana. I have a tough time wrapping my mind around that -- (inaudible) -- and I would say that's a good thing.

Comment 237 Yes, we do need to work towards a win-win, the long time stewards of the land, the long time taxpayers, those of us that have been in ag a long time. We don't need another negative to

Comment 238

Response 235 to 238: Your comments regarding exports are noted, and the agencies recognize that transmission lines have been proposed infrequently.



Comment 238 (Cont.)

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deal with, but we do need to find a way to deal with this, because these opportunities don't come along every day. I don't want to hear two years Comment 239 from now, as I so often hear, "Why not here? Why not us?," because we are going to choose, not hoping, will choose to find a win-win -- as in my friend LeAnne's vernacular, which I will now to tend to borrow.

Comment 240 With that, thank you for the chance to comment. I appreciate all of the hard work you folks do.

MR. COMO: Thanks very much. How about William McCauley.

MR. McCAULEY: My name is William McCauley. I'm a Native American of Irish descent. I am a Director of our Cut Bank Local Development Corporation, and also a City councilman in the city of Cut Bank.

Comment 241 I grew up on a homestead between Choteau and Augusta, at a crop star property with a line that was put in there by the now defunct Montana Power. We had no problem going around that line. Of course in those days, an eight foot -- (inaudible) -- hole was pretty easy to work around, and I don't think that's the same today.

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Response 239 and 240: Comments noted.

Response 241: Comment noted.

But the one thing that we didn't have was electricity. Comment 242 And the power line went through, but until the electric cooperatives came through in 1952, we had no power.

Comment 243 As we look at this today, and see the greater that the population gets and everything else, it is only prevalent that we be on the winning end of producing this power for other people, and if exporting is part of it, so be it.

Comment 244 I would like to see the agricultural people be taken care of in the proper manner. I also feel as a local businessman that that cut in our tax structure by the additional taxes that will come from this will be a God send.

Comment 245 And as I listened to people like the gentleman from Dutton, as you go down their street, you can see what happens when that is gone and those buildings close. So to keep Montana the way that it should be, we support it in every manner. Thank you.

MR. COMO: Thank you, Mr. McCauley. We have a Jeff, the first initial of his last name is "K," and he's either from Laurel, Montana, or Laurel, Maryland. That's not even close. Does anybody have any idea? Which side are we talking

Response 242 to 245: Comments noted.

about? Jeff K. from Laurel someplace.

The last name looks like K-N -- I'm sorry.

UNKNOWN SPEAKER: Is there anybody here this evening from Laurel who wishes to speak? No? If not, we'll come back to this name at the end, and we'll try to decipher it as we listen to another speaker.

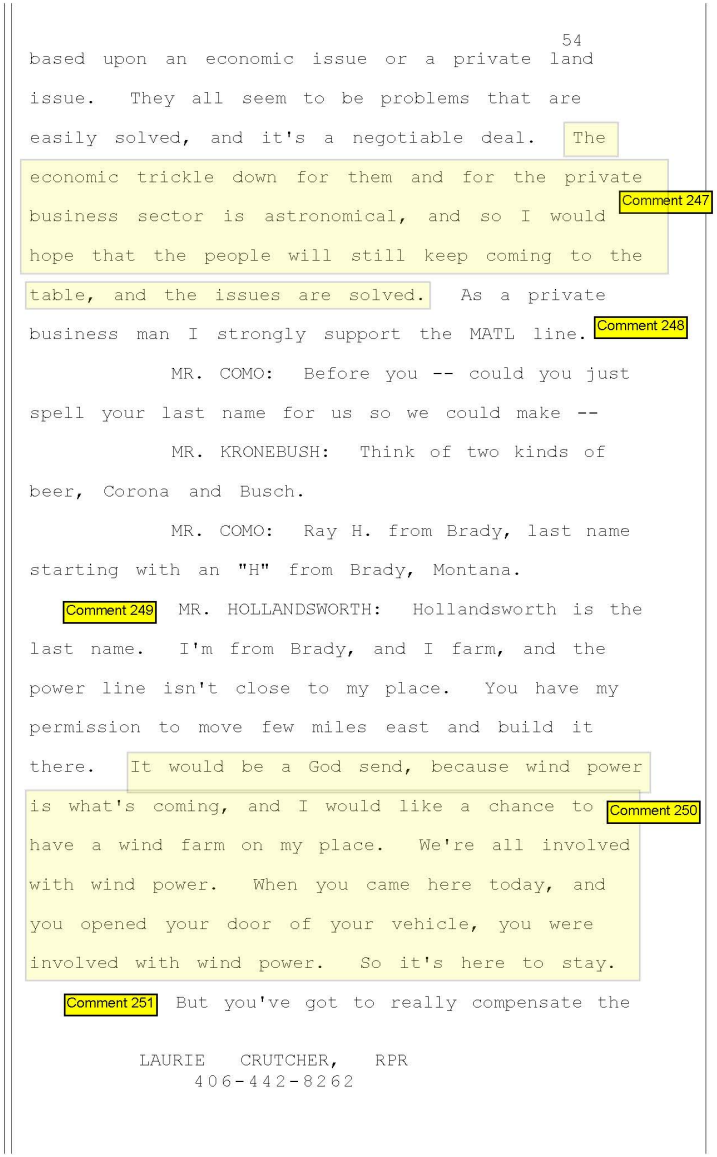
MR. COMO: We have only three more names that are just signed up here. We have this room at least until 9:00, so after these other three people are given an opportunity, we'll take a five or ten minute break or something like that, and we can meet, chat, or whatever, and we can get back on the record. Oh, I'm sorry. How about Conrad? Jeff from Conrad? Does anybody from Conrad want to speak?

MR. KRONEBUSH: My name is Ted Kronebush, K-R-O-N-E-B-U-S-H.

MR. COMO: Okay. That works.

Comment 246 MR. KRONEBUSH: I'm a private electrical contractor. I live in the Conrad area. Many of the people that are here from the agricultural side are long time customers of mine. It seems to me that the problems that they need solved are

Response 246: Comment noted.



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based upon an economic issue or a private land issue. They all seem to be problems that are easily solved, and it's a negotiable deal. The economic trickle down for them and for the private business sector is astronomical, and so I would Comment 247 hope that the people will still keep coming to the table, and the issues are solved. As a private business man I strongly support the MATL line. Comment 248

MR. COMO: Before you -- could you just spell your last name for us so we could make --

MR. KRONEBUSH: Think of two kinds of beer, Corona and Busch.

MR. COMO: Ray H. from Brady, last name starting with an "H" from Brady, Montana.

Comment 249 MR. HOLLANDSWORTH: Hollandsworth is the last name. I'm from Brady, and I farm, and the power line isn't close to my place. You have my permission to move few miles east and build it there. It would be a God send, because wind power is what's coming, and I would like a chance to Comment 250 have a wind farm on my place. We're all involved with wind power. When you came here today, and you opened your door of your vehicle, you were involved with wind power. So it's here to stay.

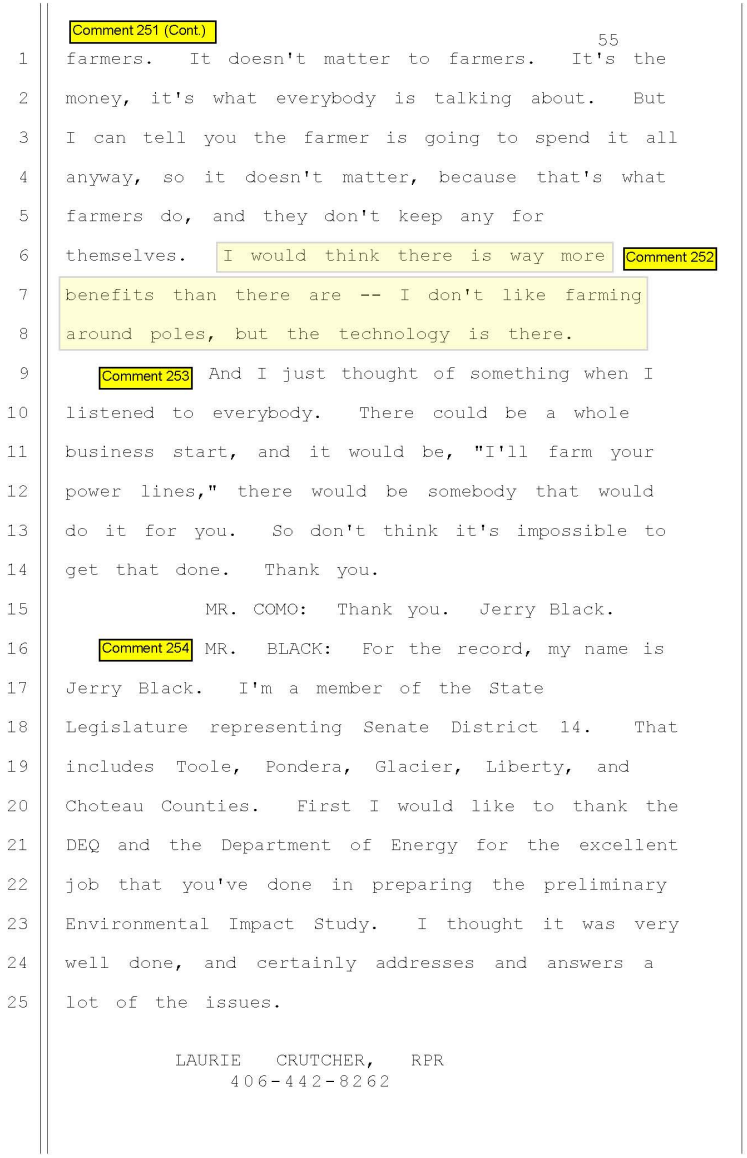
Comment 251 But you've got to really compensate the

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Response 247 and 248: Comments noted.

Response 249 and 250: Comments noted.

Response 251: Comment noted. See the EIS, Sections 2.3 and 3.13 for a discussion of MATL's proposed compensation package and alternative dispute resolution process.



Comment 251 (Cont.)

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farmers. It doesn't matter to farmers. It's the money, it's what everybody is talking about. But I can tell you the farmer is going to spend it all anyway, so it doesn't matter, because that's what farmers do, and they don't keep any for themselves. I would think there is way more benefits than there are -- I don't like farming around poles, but the technology is there. Comment 252

Comment 253 And I just thought of something when I listened to everybody. There could be a whole business start, and it would be, "I'll farm your power lines," there would be somebody that would do it for you. So don't think it's impossible to get that done. Thank you.

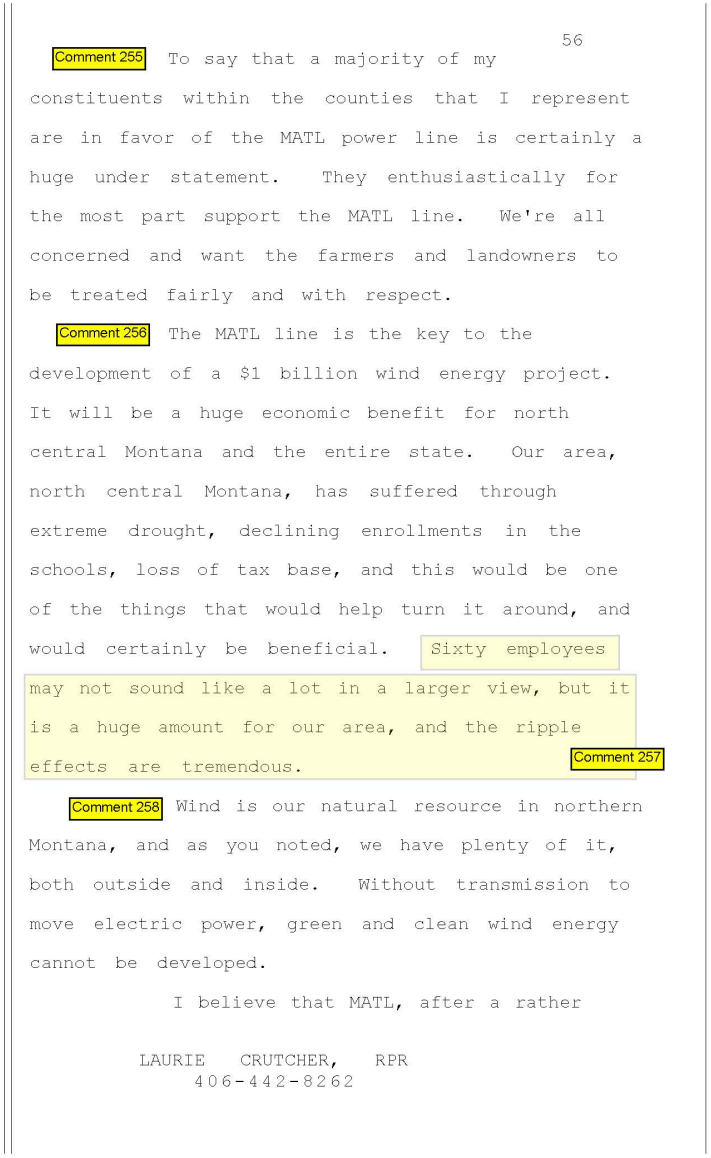
MR. COMO: Thank you. Jerry Black.

Comment 254 MR. BLACK: For the record, my name is Jerry Black. I'm a member of the State Legislature representing Senate District 14. That includes Toole, Pondera, Glacier, Liberty, and Choteau Counties. First I would like to thank the DEQ and the Department of Energy for the excellent job that you've done in preparing the preliminary Environmental Impact Study. I thought it was very well done, and certainly addresses and answers a lot of the issues.

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Response 252 and 253: Comments noted.

Response 254: Comment noted.



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Comment 255 To say that a majority of my constituents within the counties that I represent are in favor of the MATL power line is certainly a huge under statement. They enthusiastically for the most part support the MATL line. We're all concerned and want the farmers and landowners to be treated fairly and with respect.

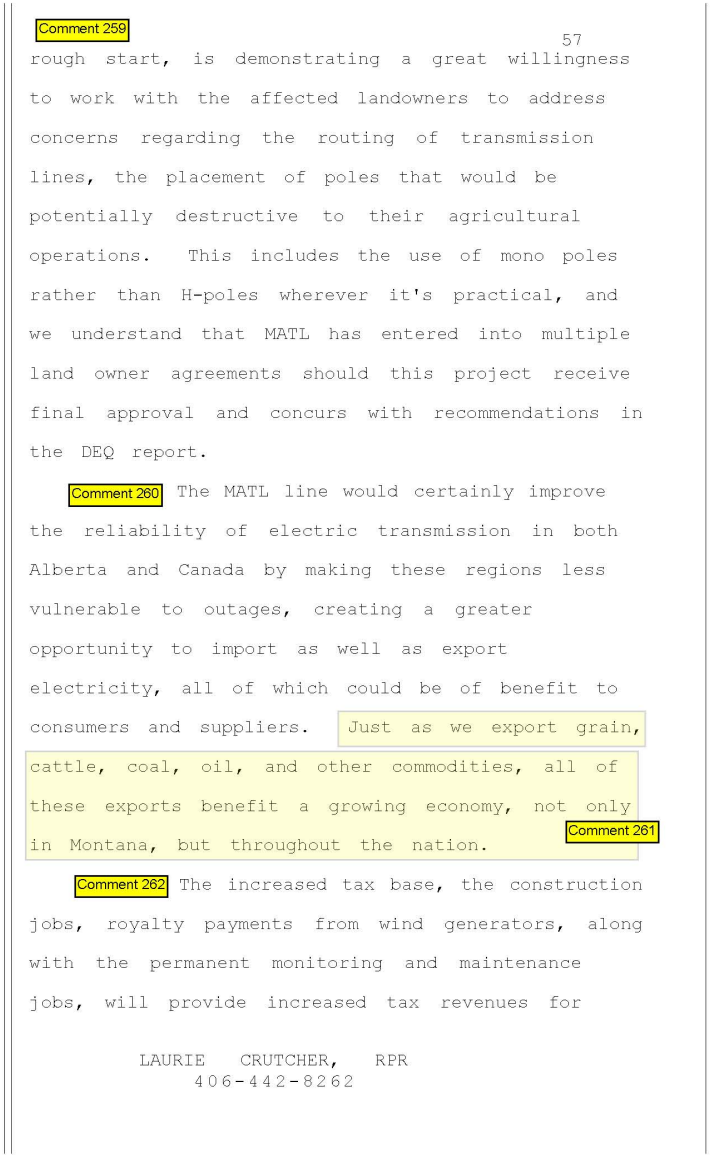
Comment 256 The MATL line is the key to the development of a $1 billion wind energy project. It will be a huge economic benefit for north central Montana and the entire state. Our area, north central Montana, has suffered through extreme drought, declining enrollments in the schools, loss of tax base, and this would be one of the things that would help turn it around, and would certainly be beneficial. Sixty employees may not sound like a lot in a larger view, but it is a huge amount for our area, and the ripple effects are tremendous. Comment 257

Comment 258 Wind is our natural resource in northern Montana, and as you noted, we have plenty of it, both outside and inside. Without transmission to move electric power, green and clean wind energy cannot be developed.

I believe that MATL, after a rather

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Responses 255 to 258: See Socioeconomic Issues and Wind Farm Issues in the Consolidated Responses section.



Comment 259

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rough start, is demonstrating a great willingness to work with the affected landowners to address concerns regarding the routing of transmission lines, the placement of poles that would be potentially destructive to their agricultural operations. This includes the use of mono poles rather than H-poles wherever it's practical, and we understand that MATL has entered into multiple land owner agreements should this project receive final approval and concurs with recommendations in the DEQ report.

Comment 260 The MATL line would certainly improve the reliability of electric transmission in both Alberta and Canada by making these regions less vulnerable to outages, creating a greater opportunity to import as well as export electricity, all of which could be of benefit to consumers and suppliers. Just as we export grain, cattle, coal, oil, and other commodities, all of these exports benefit a growing economy, not only in Montana, but throughout the nation. Comment 261

Comment 262 The increased tax base, the construction jobs, royalty payments from wind generators, along with the permanent monitoring and maintenance jobs, will provide increased tax revenues for

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Response 259: See the discussion of Line Issues in the Consolidated Responses section and the response to comment 229.

Responses 260 to 262: See Socioeconomic Issues in the Consolidated Responses section.

Montana, and even more importantly, the badly needed local tax dollars for our schools, fire departments, law enforcement, county roads, parks, and other services that have suffered due to that declining population and loss of tax base.

Comment 263 It should be noted that MATL is the merchant's line, and in that a capital investment and risk is made by the banks and private investors rather than by local taxpayers in Montana and Alberta.

Comment 264 It is imperative that we develop all of our country's green energy resources for our generation and, of course, for future generations to come. There is already a great concern about brownouts throughout various parts of the United States. By working cooperatively with all stakeholders, including the landowners, state agencies such as DEQ, our county governments, and others, we can move forward without costly delays that could very well jeopardize the entire project.

Comment 265 We certainly urge your approval of the MATL line application that will benefit Montana and Alberta consumers and suppliers. It's much like connecting power cables to a huge battery

Response 263 to 265: Comments noted.

that moves the economic engine of development.

Comment 266 We believe that in your decisions, there must be good balance in your decisions that are fair to all parties, that makes sense economically, and addresses the most sensitive issues in a reasonable and proper manner.

Comment 267 I'll be submitting a written statement of my remarks, along with the support of other state senators and state representatives in Montana, who strongly supported the clean and green energy bill, and support the MATL line in Montana. We feel it's absolutely essential for the development of clean energy.

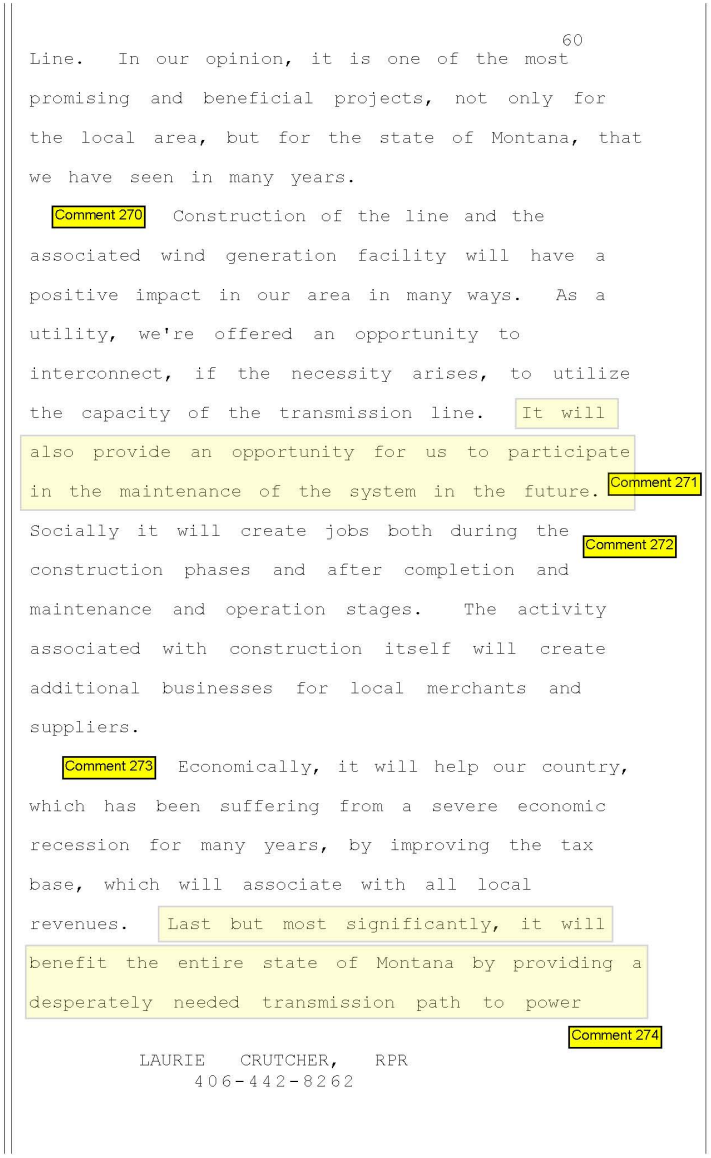
Comment 268 I would like to thank you once again for providing this time for these remarks. I think the input has been extremely good, and I know you'll weigh those with good judgment and good balance. Thank you very much.

MR. COMO: Thank you, Mr. Black. Doug Ray.

Comment 269 MR. RAY: My name is Doug Ray, and I'm here to represent Glacier Electric Board of Directors and management. Glacier Electric Cooperative, Incorporated would like to offer its unequivocal support to the Montana-Alberta Tie

Response 266 to 268: Comments noted.

Response 269: Comment noted.



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Line. In our opinion, it is one of the most promising and beneficial projects, not only for the local area, but for the state of Montana, that we have seen in many years.

Comment 270 Construction of the line and the associated wind generation facility will have a positive impact in our area in many ways. As a utility, we're offered an opportunity to interconnect, if the necessity arises, to utilize the capacity of the transmission line. It will also provide an opportunity for us to participate in the maintenance of the system in the future. Comment 271

Socially it will create jobs both during the construction phases and after completion and maintenance and operation stages. The activity associated with construction itself will create additional businesses for local merchants and suppliers. Comment 272

Comment 273 Economically, it will help our country, which has been suffering from a severe economic recession for many years, by improving the tax base, which will associate with all local revenues. Last but most significantly, it will benefit the entire state of Montana by providing a desperately needed transmission path to power Comment 274

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Response 270 to 274: Comments noted.

created by new generation facilities that will develop in the vicinity of the new line and also in Montana and in Alberta.

Comment 275 We congratulate the Montana-Alberta Tie Line group on their innovative and progressive approach, and wish them success for construction and operation of the transmission line. Sincerely, Jason R. Braunich {phonetic}, general manager.

MR. COMO: Thank you. We've gone through our list of people that have already signed up. We'll take about a ten minute break, and then we'll reconvene, and give us a chance to meet some of you, and some of you might have some other thoughts that you want to throw on the record. So we'll just take a pause in the proceedings for awhile.

{Recess taken}

MR. COMO: If you'll take your seats, and we'll get going just as soon as you can do that. We understand that some of you have some transportation that's desperately waiting to leave. We don't want that to happen.

The next gentleman that's signed up to speak is Tom Shock.

Response 275: Comment noted.

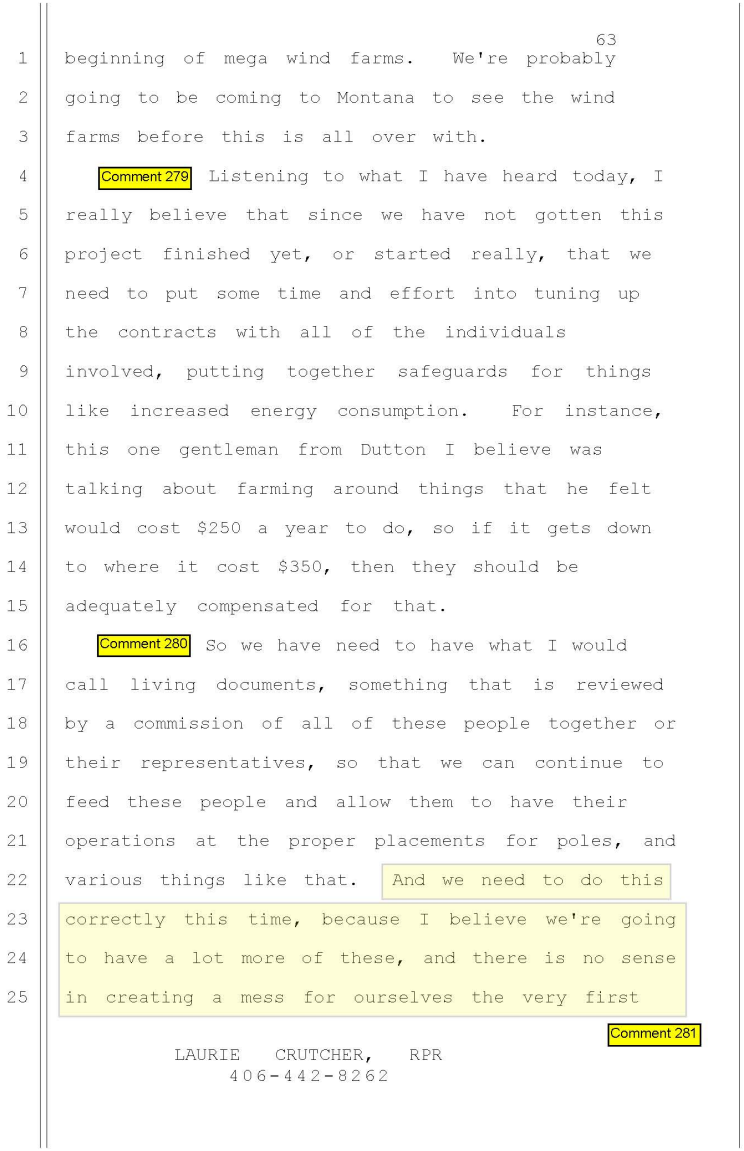
Comment 276 MR. SHOCK: I'm Tom Shock of Cut Bank. I'm a city council person. And I'm a person who has studied this power requirement thing that we have in this country for quite some time. I believe that the population of our country is growing bigger every day, and for whatever reason, we're doing all sorts of things to reduce our energy input, but our energy output requirements continue to increase. And I personally am in favor of nuclear power plants, but once you say that word in one sentence, then everybody thinks they're going to turn green and glow in the dark.

Comment 277

Comment 278 And so my family is mostly back east. They talk about having clean water, clean fuel, and clean energy. The other day on television -- which requires energy to view -- I looked at a map of the wind areas in the United States.

Now, it turns out that from the northern tip of the Rocky Mountains at the border of Canada, to the southeast corner of the state of Montana, and also to include North Dakota and South Dakota, is one of the highest velocity wind energy, the most constant velocity wind energy areas in the United States. So I feel like the wind farms that we have today are just the

Response 276 to 278: Comments noted.



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beginning of mega wind farms. We're probably going to be coming to Montana to see the wind farms before this is all over with.

Comment 279 Listening to what I have heard today, I really believe that since we have not gotten this project finished yet, or started really, that we need to put some time and effort into tuning up the contracts with all of the individuals involved, putting together safeguards for things like increased energy consumption. For instance, this one gentleman from Dutton I believe was talking about farming around things that he felt would cost $250 a year to do, so if it gets down to where it cost $350, then they should be adequately compensated for that.

Comment 280 So we have need to have what I would call living documents, something that is reviewed by a commission of all of these people together or their representatives, so that we can continue to feed these people and allow them to have their operations at the proper placements for poles, and various things like that. And we need to do this correctly this time, because I believe we're going to have a lot more of these, and there is no sense in creating a mess for ourselves the very first

Comment 281

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Response 279: Comment noted. See the discussion of MATL's revised compensation package in the EIS, Section 2.3, Rights-of-Way.

Response 280: In June 2008, after discussions between DEQ and MATL, MATL proposed an alternative dispute resolution package, as described in the EIS, Section 2.3, Rights-of-Way.

Response 281: Comment noted.

time out of the gate.

I would like to thank you for allowing me to speak. I'm sorry. I didn't check the right thing. Thank you so much.

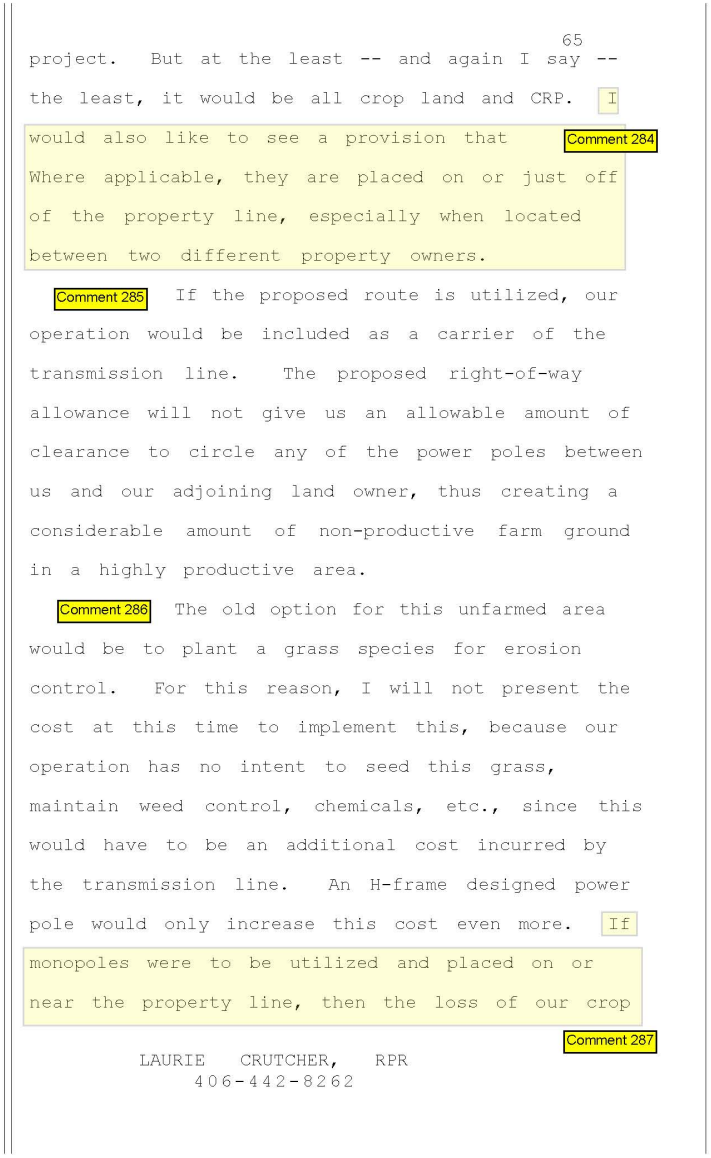
MR. COMO: Thank you very much. We've sort of used up all of the people that registered at the door, but we've got the room for at least another hour. So yes. Just come on up and give us your name.

Comment 282 MR. DALTON (phonetic): Good evening. My name is Steve Dalton. I think the last gentleman kind of -- with his remarks, so far just listening to this, again, kind of to reiterate what Katrina, our first speaker, indicated. And I was one of the producers in the Dutton area that had met, and at our first meetings with Montana -- (inaudible) -- nobody was against it. And so far I haven't heard anybody that really is. It just goes back to the implementation of how us, as the ag producers, how they are going to be supporting this needs to be done.

Comment 283 So with that, I am a fourth generation ag producer in the Dutton/Power area. First, with regard to the power poles. They should be all of the single monopole design throughout the whole

Response 282: Comments noted.

Response 283: MATL has proposed to use monopoles on all diagonal crossings of cultivated and CRP land. See the discussion of Line Issues in the Consolidated Responses section.



65

project. But at the least -- and again I say -- the least, it would be all crop land and CRP. I would also like to see a provision that Where applicable, they are placed on or just off of the property line, especially when located between two different property owners.

Comment 284

Comment 285 If the proposed route is utilized, our operation would be included as a carrier of the transmission line. The proposed right-of-way allowance will not give us an allowable amount of clearance to circle any of the power poles between us and our adjoining land owner, thus creating a considerable amount of non-productive farm ground in a highly productive area.

Comment 286 The old option for this unfarmed area would be to plant a grass species for erosion control. For this reason, I will not present the cost at this time to implement this, because our operation has no intent to seed this grass, maintain weed control, chemicals, etc., since this would have to be an additional cost incurred by the transmission line. An H-frame designed power pole would only increase this cost even more. If monopoles were to be utilized and placed on or near the property line, then the loss of our crop

Comment 287

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Response 284: DEQ typically approves constructing a line within 250 feet on either side of a reference center line. Certificate holders then negotiate with landowners on exact structure placement.

Response 285: Comment noted.

Response 286: Comments noted. See the discussion of MATL's revised compensation package in the EIS, Section 2.3, Rights-of-Way.

Response 287: Comment noted.

land, the cost of the transmission line would be minuscule.

Comment 288 Regarding safety. I know there was a little bit touched on this. Our farm equipment is not getting any smaller, and in time will probably continue to increase in height, width, weight, and etc.

Comment 289 You read about the loss of birds, but what about the increased risk of death or serious injury for the humans that are driving this large farm equipment? Would you like to send your family members, younger nieces and nephews, into potential harms way, especially at harvest time, driving -- (inaudible) -- with lift augers or high -- (inaudible) -- grain augers themselves. There was an incident not too long ago just north of Great Falls where a young man pulling a grain auger got close enough to a power line, the electricity arced, and this young man was seriously injured.

Comment 290 Again, this is why it is absolutely necessary to utilize the higher power pole lines of the monopole design. We utilize aerial spray. Have you taken into consideration the increased risk to those -- (inaudible) -- I have

Response 288: Comment noted.

Response 289 and 290: See the discussion of Safety Issues in the Consolidated Responses section and the EIS, Section 2.3, and Table 2.3-1.

Comment 291

yet to hear our pilots complain about a line being too high. Give them the option of plowing under these lines if they have to as a last resort.

Comment 292 Briefly in closing, I would like to say that if all it takes is a few extra million dollars -- which in my opinion is minuscule when dealing with a project of this magnitude -- to prevent human tragedy from occurring, then you have no choice but to do what is right the first time. Why not be the one to set an example for any further transmission lines in the future? Thank you.

MR. COMO: Thank you very much.

MR. McFARLAND: My name is John McFarland. I'm from Conrad. I was born and raised on a farm and ranch. I am a friend of agriculture for sure. I'm currently a small business owner in Conrad, past president of the Conrad Chamber of Commerce, and a board member on the Pondera Regional Port Authority.

Comment 293 Having said all of that, it is imperative that we move forward with the project. I am very much in support. But we also need to turn our attention to our friends in agriculture, make sure that MATL is willing to shoulder the

Response 291: Your comment is noted.

Response 292: Comments noted.

Response 293: Comment noted.

additional cost to fairly compensate our folks who have had the negative impact on their land, and to take the least invasive route possible to ensure minimal amounts of invasion. Thank you. Comment 294

MR. COMO: Thank you.

Comment 295 MR. SEIFERT: I'm Dale Seifert. I'm a land owner up in the area that the line is going through. They are not proposing going through me, but I'm strongly in favor of it.

Comment 296 One thing that happens in our area is we're a larger gated area, and with the water rights situations like we're having, and the low moisture levels, the economy around is hurting. As far as I'm concerned, the MATL line itself will not benefit me directly, but it opens up the possibility for wind farms, which generates income. As Mr. Hollandsworth said, farmers spend money. It will help.

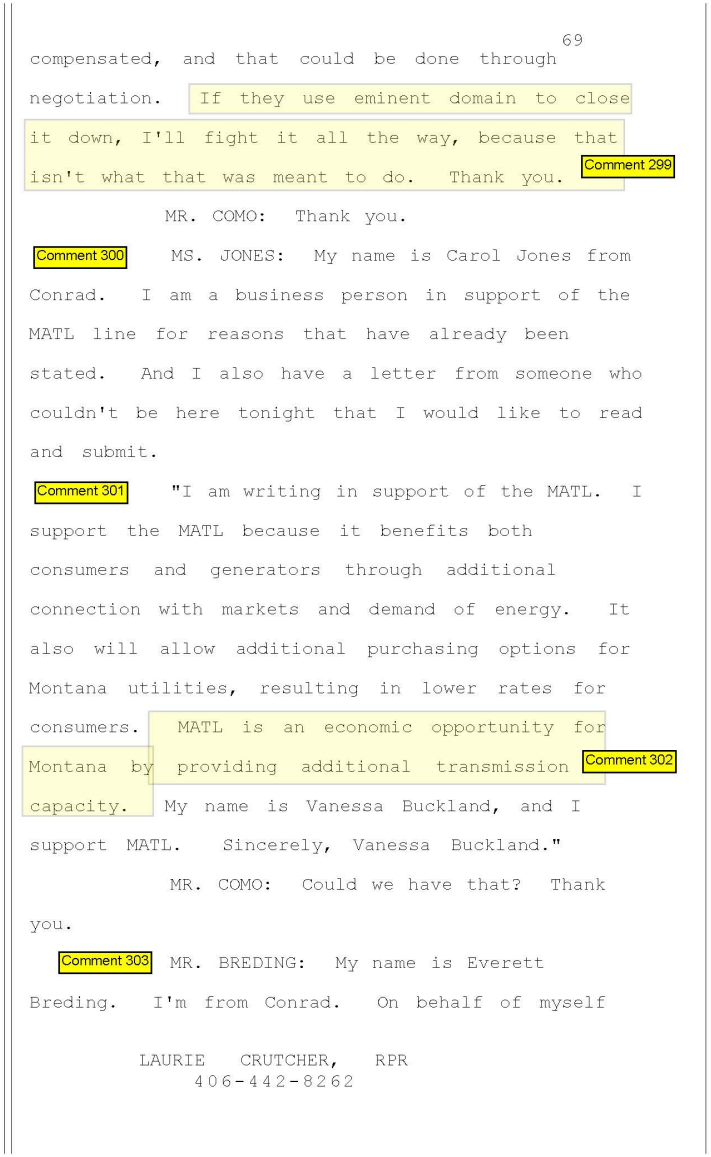
Comment 297 You can look at the businesses in Conrad, which is an irrigated area, compare it to Chester or Shelby. That is the same type of land, farm dry land. The farmers are struggling. They're not spending the money. The local businesses are closing down.

Comment 298 I believe the farmers should be fairly

Response 294: Comments noted.

Response 295 to 297: Your comments are noted.

Response 298: Comments noted. See the discussion of MATL's revised compensation package in the EIS, Section 2.3, Rights-of-Way.



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compensated, and that could be done through negotiation. If they use eminent domain to close it down, I'll fight it all the way, because that isn't what that was meant to do. Thank you. Comment 299

MR. COMO: Thank you.

Comment 300 MS. JONES: My name is Carol Jones from Conrad. I am a business person in support of the MATL line for reasons that have already been stated. And I also have a letter from someone who couldn't be here tonight that I would like to read and submit.

Comment 301 "I am writing in support of the MATL. I support the MATL because it benefits both consumers and generators through additional connection with markets and demand of energy. It also will allow additional purchasing options for Montana utilities, resulting in lower rates for consumers. MATL is an economic opportunity for Montana by providing additional transmission Comment 302 capacity. My name is Vanessa Buckland, and I support MATL. Sincerely, Vanessa Buckland."

MR. COMO: Could we have that? Thank you.

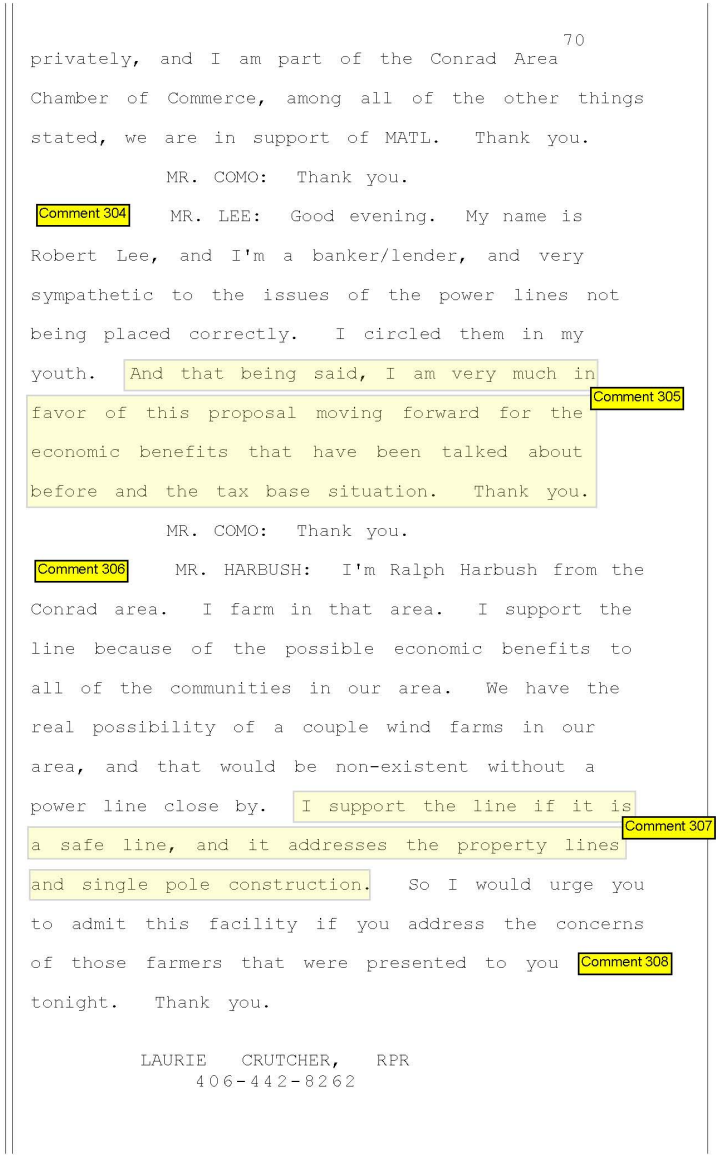
Comment 303 MR. BREDING: My name is Everett Breding. I'm from Conrad. On behalf of myself

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Response 299: Comment noted. See Legal and Regulatory Issues in the Consolidated Responses section.

Response 300 to 302: Thank you for your comments and the comments in the letter from Vanessa Buckland.

Response 303: Comment noted.



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privately, and I am part of the Conrad Area Chamber of Commerce, among all of the other things stated, we are in support of MATL. Thank you.

MR. COMO: Thank you.

Comment 304 MR. LEE: Good evening. My name is Robert Lee, and I'm a banker/lender, and very sympathetic to the issues of the power lines not being placed correctly. I circled them in my youth. And that being said, I am very much in favor of this proposal moving forward for the economic benefits that have been talked about before and the tax base situation. Thank you.

Comment 305

MR. COMO: Thank you.

Comment 306 MR. HARBUSH: I'm Ralph Harbush from the Conrad area. I farm in that area. I support the line because of the possible economic benefits to all of the communities in our area. We have the real possibility of a couple wind farms in our area, and that would be non-existent without a power line close by. I support the line if it is a safe line, and it addresses the property lines and single pole construction. So I would urge you to admit this facility if you address the concerns of those farmers that were presented to you tonight. Thank you.

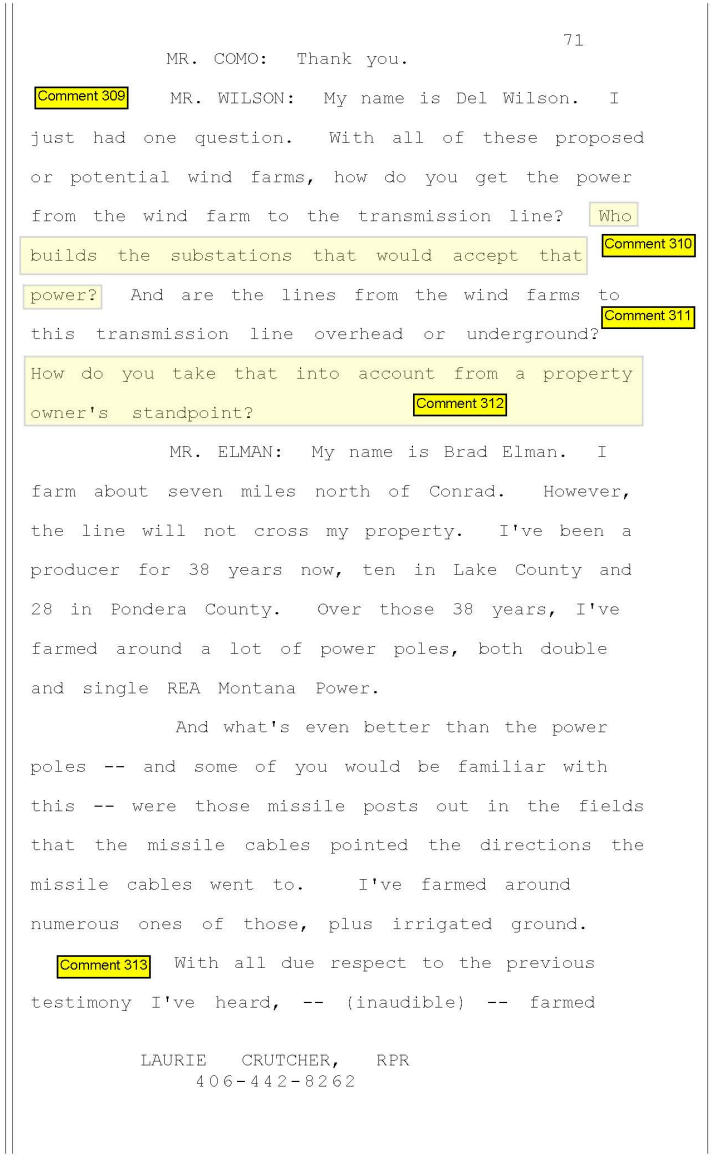
Comment 307

Comment 308

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Response 304 and 305: Comments noted.

Response 306 to 308: Comments noted. See the discussion of Farming Issues and Line Issues in the Consolidated Responses section.



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MR. COMO: Thank you.

Comment 309 MR. WILSON: My name is Del Wilson. I just had one question. With all of these proposed or potential wind farms, how do you get the power from the wind farm to the transmission line? Who builds the substations that would accept that Comment 310 power? And are the lines from the wind farms to this transmission line overhead or underground? Comment 311 How do you take that into account from a property owner's standpoint? Comment 312

MR. ELMAN: My name is Brad Elman. I farm about seven miles north of Conrad. However, the line will not cross my property. I've been a producer for 38 years now, ten in Lake County and 28 in Pondera County. Over those 38 years, I've farmed around a lot of power poles, both double and single REA Montana Power.

And what's even better than the power poles -- and some of you would be familiar with this -- were those missile posts out in the fields that the missile cables pointed the directions the missile cables went to. I've farmed around numerous ones of those, plus irrigated ground.

Comment 313 With all due respect to the previous testimony I've heard, -- {inaudible} -- farmed

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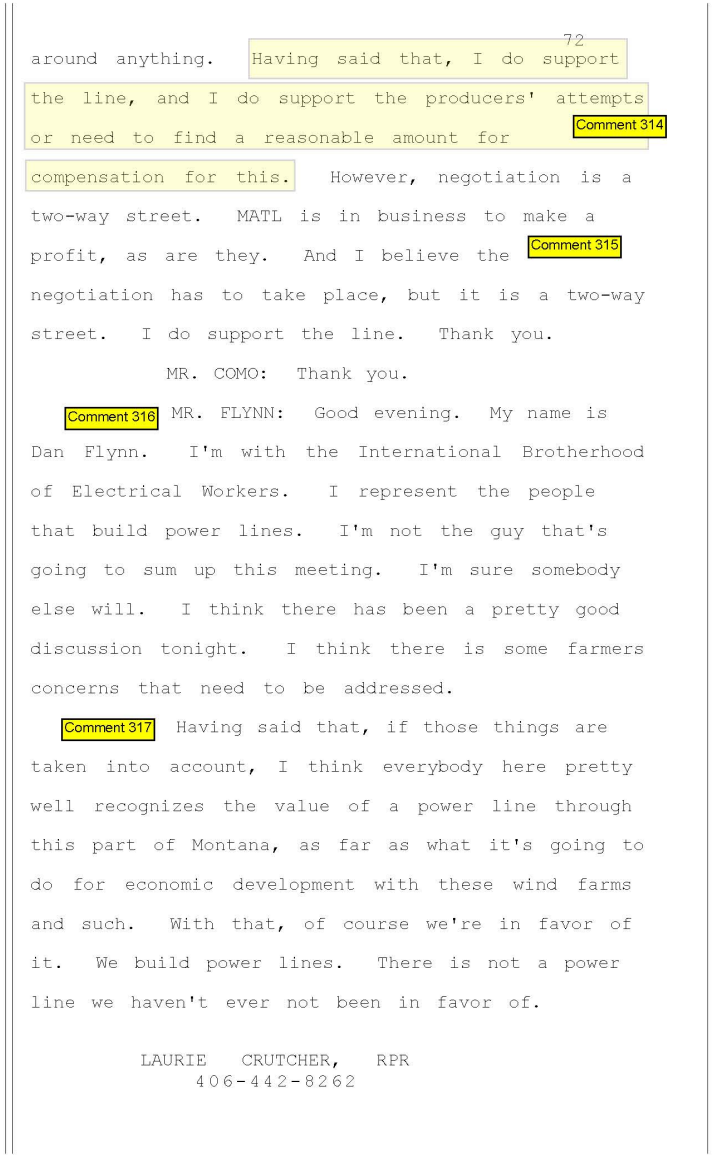
Response 309: See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 310: See the discussions of Line Issues and Wind Farm Issues in the Consolidated Responses section.

Response 311: See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 312: See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 313: Comment noted.



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around anything. Having said that, I do support the line, and I do support the producers' attempts or need to find a reasonable amount for compensation for this. However, negotiation is a two-way street. MATL is in business to make a profit, as are they. And I believe the negotiation has to take place, but it is a two-way street. I do support the line. Thank you.

MR. COMO: Thank you.

MR. FLYNN: Good evening. My name is Dan Flynn. I'm with the International Brotherhood of Electrical Workers. I represent the people that build power lines. I'm not the guy that's going to sum up this meeting. I'm sure somebody else will. I think there has been a pretty good discussion tonight. I think there is some farmers concerns that need to be addressed.

Having said that, if those things are taken into account, I think everybody here pretty well recognizes the value of a power line through this part of Montana, as far as what it's going to do for economic development with these wind farms and such. With that, of course we're in favor of it. We build power lines. There is not a power line we haven't ever not been in favor of.

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Comment 314

Comment 315

Comment 316

Comment 317

Response 314 and 315: Comments noted. MATL has updated the compensation package and proposed an alternative dispute resolution process. These are described in Sections 2.3 and 3.13.3.2 in the EIS. Your comment regarding negotiation is noted.

Response 316 and 317: See the discussion of Farming Issues in the Consolidated Responses section.

in two weeks late, are we going to throw it away? Of course not. If you send it in a month late, yes, we'll probably still be able to -- if you hand it in like three months late when we've got the final document on the press, we're probably not going to be able to do anything about it. So yes, it's not a hard and fast legal deadline, but the closer you get your comments in to that, the better chance we can guarantee that we'll be able to consider them in our final document. Thanks.

Joe Christiaens.

MR. CHRISTIAENS: Thank you very much. My name is Joe Christiaens. I'm a Pondera County Commissioner, Conrad, Montana, and I represent the western district.

Comment 318 We commented about a lot of things, and one of the things that -- the schools bothers me considerably. We lost a school here about three or four years ago. We were able to get it back open a little, not a lot; but we were able to get it up some. We are going to lose the Brady School next year because of the lack of students and a lack of money. The money is just not there to keep that little school open, and that creates a real problem for us, too.

The following responses are to comments received at the public hearing in Cut Bank.

Response 318: Comment noted.

Comment 319 Again, I want to echo the thought that we are really sympathetic with the farm problem, too. We do want the people that they're working with, the line is working with, that they keep those people first in mind of everything that they're going to do, and work on.

Comment 320 So we've let a lot of things go by us in the past, and I think we need to make sure that we don't let something like this go past us again, because I think it's going to be of utmost importance to all of the counties in this area really. I think it will help them considerably with road maintenance, equipment, anything that is out there in the field. So again, thank you very much. I appreciate the time.

MR. COMO: Thank you. Roy Hollandsworth.

MR. HOLLANDSWORTH: I'm Roy Hollandsworth. I was in Great Falls last night, and I've got to say the bus load of people coming down was great. Numbers do matter, and it was really quite supportive, because the meeting turned out well in Great Falls.

Comment 321 But I farm by Brady, and I have no power lines on my place, but I'm here to support it from

Response 319: Your comments regarding farming around poles are noted.

Response 320: Comment noted.

Response 321: Comment noted.

the economic development end. And we can't let this go by this time. And we talked earlier. The wind turbine thing may not be part of this, but Freelander (phonetic) isn't building in Butte to not use turbines. We have wind blow every day. This line might not be used 100 percent for turbines, but if this goes through smoothly, other lines will develop in different places.

Comment 322

Comment 323 Wind turbine energy is, I think, another crop that we can harvest, and we need it, and we want to really turn around the down slide in all of our communities. Brady is one. Conrad, you could shoot a rifle or race a car down the street most days, and you wouldn't even know anybody is around. And Conrad used to be a going concern.

Comment 324 So I'm glad everybody is here, and I hope everybody is behind it, and I want to show my support. Thank you.

MR. COMO: Johnel Barcus.

Comment 325 MS. BARCUS: Mr. Chairman. Browning Area Chamber of Commerce, although it's roughly on the Blackfeet Reservation, and we're not touched by this, this affects our whole area. A lot of the potential that we have in our area this close to Glacier National Park are tourism; and on the

Response 322 and 324: Comments noted.

Response 325: Comment noted.

reservation, unlike a lot of rural Montana, like they mentioned with Brady and lack of enrollment, we have a large growing population on the reservation, which is pretty particular of all Indian communities in the state. So the potential is here, and this is only going to further it.

Comment 326 Along with that, economic development, jobs, and our transmission system throughout this area, throughout our state, is very -- It's going down. It needs this upgrade, and we need this line in.

Comment 327 And yes, you're right. That Butte center, they're not going to be building them that close in North Dakota, they're not building them that close unless they have some projects moving there. Thank you.

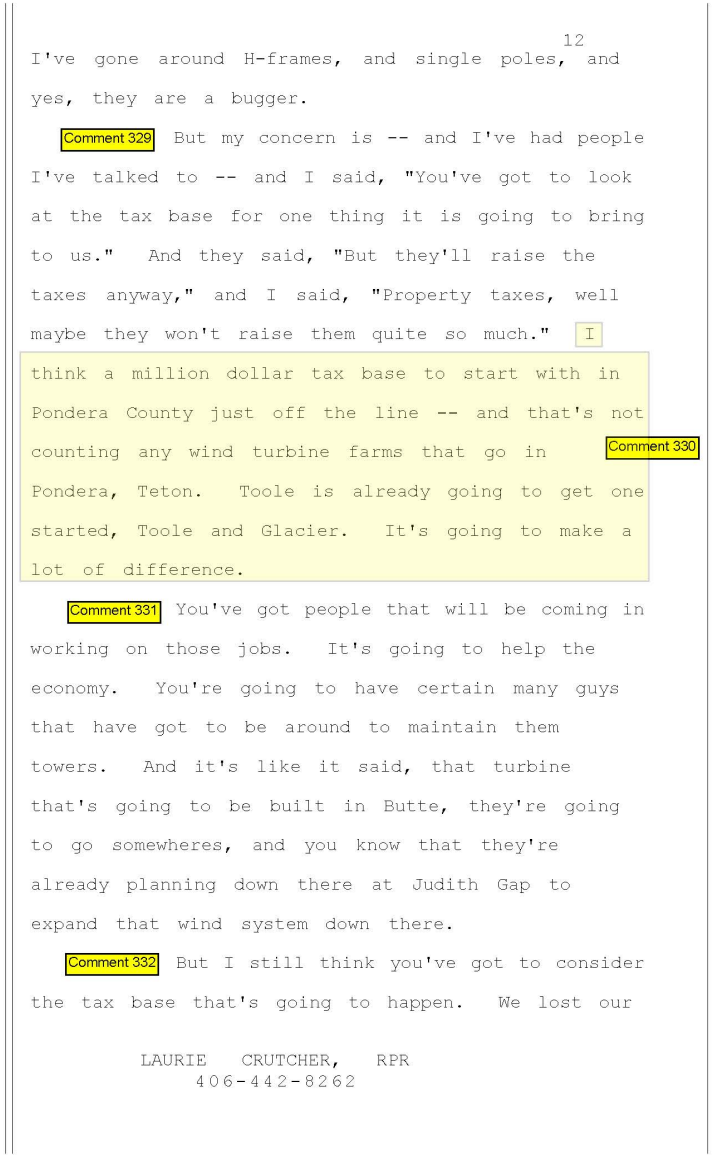
MR. COMO: Thank you. By the way, if any of you have anything that you're reading from, it would help us if you left it with us.

Dave Brownell.

Comment 328 MR. BROWNELL: I'm from Conrad, and unlike Roy, we won't see any poles on our place. I've farmed around oil wells, power poles; I've worked for Custom Crop Care in Conrad running a big ninety foot boom sprayer, and I've worked --

Response 326 and 367: Comment noted.

Response 328: Comment noted.



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I've gone around H-frames, and single poles, and yes, they are a bugger.

Comment 329 But my concern is -- and I've had people I've talked to -- and I said, "You've got to look at the tax base for one thing it is going to bring to us." And they said, "But they'll raise the taxes anyway," and I said, "Property taxes, well maybe they won't raise them quite so much." I think a million dollar tax base to start with in Pondera County just off the line -- and that's not counting any wind turbine farms that go in Comment 330 Pondera, Teton. Toole is already going to get one started, Toole and Glacier. It's going to make a lot of difference.

Comment 331 You've got people that will be coming in working on those jobs. It's going to help the economy. You're going to have certain many guys that have got to be around to maintain them towers. And it's like it said, that turbine that's going to be built in Butte, they're going to go somewheres, and you know that they're already planning down there at Judith Gap to expand that wind system down there.

Comment 332 But I still think you've got to consider the tax base that's going to happen. We lost our

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Response 329: Comment noted. Also see Socioeconomic Impact Issues in the Consolidated Responses section.

Response 330: Taxes are discussed in Sections 3.13 and 4.14 of the EIS.

Response 331 and 332: See Socioeconomic Issues in the Consolidated Responses section.

missiles out of Pondera County, Teton, Glacier, and Toole, I think, and a little bit out of Lewis & Clark, but I think Pondera County was hit the hardest. My family farms both in Teton and Pondera County. Our biggest mostly is in Teton. But anything that can help our tax base, I think we should look at. Thank you.

MR. COMO: Thank you. Mike Koepke.

Comment 333 MR. KOEPKE: I'm Mike Koepke of Cut Bank, Executive Director of the Cut Bank Development Corporation. I have four letters that were sent to me. These individuals were not able to show up. The first was from Triangle Land and Livestock Company.

Comment 334 "We are sorry we are not able to attend the hearing in person, but we are in the midst of calving. We would like to express our strong support for the Montana-Alberta Tie Line. It is imperative that this region develops infrastructure and business opportunities to bolster the economy and expand the tax base. It is increasingly difficult for the existing small business owners to bear the burden of business and rural property taxes.

Comment 335 "This is a tremendous opportunity to

Response 333 to 335: Thank you for bringing comments from people who were unable to attend the meeting.

open the doors to new and responsible development.

We encourage all parties to work together to mitigate any problems with the placement of this line, and offer our strong support for proceeding with the Montana-Alberta Tie Line. Sincerely, Colleen Gustafson." Comment 336

Comment 337 Next one: "Thank you for the opportunity to comment on the draft Environmental Impact Statement for the Montana-Alberta Tie Transmission Line. Billman's Home Decor would like to go on record offering its full support for the electric transmission line proposed by Montana-Alberta Tie, Limited.

"Our business is located in Cut Bank, Montana, and is dedicated to the promotion and growth of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

Comment 338 "Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project, and we urge the Montana DEQ and BLM to issue the needed certificates of compliance and right-of-ways as

Response 336: Comment noted.

Response 337 and 338: Comments noted. Also see Socioeconomic Impact Issues in the Consolidated Responses section.

required. Sincerely, Valerie Vermohlen (phonetic), President, Billman's Home Decor."

Comment 339 "Thank you for the opportunity to comment on the draft Environmental Impact Statement for the Montana-Alberta Tie Transmission Line. Billman's, Incorporated would like to go on record offering its full support for the electric transmission line proposed by Montana-Alberta Tie, Limited.

"Our business is located in Cut Bank, and it is dedicated to the promotion and growth of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

"Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project, and we urge that the Montana DEQ and BLM issue the needed certificates of compliance and rights-of-way as required. Sincerely, Rick Billman, President of Billman's, Inc."

Comment 340 "Thanks for the opportunity to comment on the draft Environmental Impact Statement for

Response 339 and 340: Comments noted.

the Montana-Alberta Tie Transmission Line. We would like to offer our full support for the electric transmission line proposed by Montana-Alberta Tie, Limited. Our family owns several rental businesses in Cut Bank, making us dedicated to the continued growth of the area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the entire Golden Triangle area.

"Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project, and we urge the Montana DEQ and BLM to issue the needed certificates of compliance and right-of-ways. Sincerely Rick Billman, Jeff Billman, Valerie Vermohlen of R&G Rentals, J&C Rentals, B&V Rentals."

Comment 341 And I'd just like to reiterate for Cut Bank Billman Corporation that we're in support of the MATL line project. And as a producer, I farm in Glacier County and Toole County, and I would like to be on record as in support again for the MATL line.

Comment 342 And also as Chairman of the school

Response 341 and 342: Comments noted.

Comment 342 (Cont.)

board, I would like to show support for the MATL line, and the increase in tax base is going to help kids. Thank you.

MR. COMO: Bill McCauley.

Comment 343 MR. McCAULEY: As a local business person, and City Council person, I wish to go on record as supporting the project, but would request that the farmers and ranchers that the line crosses are taken care of both financially and by future agreements in writing for all parties.

Comment 344 This project is a great boost to our overburdened tax base. I have heard the argument that we are allowing the line owners too much short term tax break, but I ask you: What is 100 percent of nothing? And that's what we have at this time.

Comment 345 Our local cooperatives, rural cooperatives, are the backbone of the electrical rural America, and that they feel that this is a good deal, which they have. Once again, on behalf of myself as a taxpayer for many phases, I fully support this project. Thank you.

MR. COMO: Thank you. Joni Stewart.

MS. STEWART: My name is Joni Stewart,

Response 343: See Farming Issues in the Consolidated Responses section.

Response 344: See Socioeconomic Issues and Tax Issues in the Consolidated Responses section.

Response 345: Comment noted.

and I'm the Mayor of the city of Cut Bank. And on behalf of the City Council, I'd like to read this letter.

Comment 346 "The purpose of this letter is to indicate the City of Cut Bank's full support for the electric transmission line proposed by MATL. We have reviewed the draft Environmental Impact Statement, and find this project to be of great benefit to Glacier County and the surrounding areas.

Comment 347 "We believe that MATL's response to the current concerns raised in previous public meetings have been thoroughly addressed, and commend MATL officials on their efforts to create a positive situation for all involved.

Comment 348 "Wind energy projects are one of the most viable answers to developing clean and green industry for northern Montana. On behalf of the City of Cut Bank, we urge DEQ and BLM to issue the required permits, and look forward to hearing that a Presidential Permit has been issued. Thanks."

MR. COMO: Roxy Gillespie, you had down maybe.

Comment 349 MS. GILLESPIE: I just wanted to say for my husband and I, Rimrock Cattle Company, that we

Response 346 to 348: Comments noted.

Response 349: Comment noted.

support this, especially in view of the number of drought years that our counties have had. Just having a better tax base would improve everything agriculturally and also in the urban communities.

MR. COMO: Thank you. We've got a whole another page and a half of people who have given us their names and their addresses, but haven't checked that they want to speak. So if it's okay, I'll just go down -- who are you?

MS. COOLIDGE: Jackie Coolidge. I'm from Sunburst, Montana, and I'm on the council there. But I came to speak from my heart.

Comment 350 We're trying to bring our community back to life, and this is an opportunity that will help our community get on its feet again. We have several things that are happening there, and it's exciting for us.

Comment 351 We have lost quite a bit of our population, our schools, our student population, and we would like to get that back again; and the way to get that back again is to attract people to our town and have them stay there. And if this program comes in, there might be jobs. They would boost our school system, which is very important.

Comment 352 Also we have a lot of small businesses,

Response 350 to 352: See Socioeconomic Issues in the Consolidated Responses section.

like everyone else in every other community; and with the workers that come in, they support the restaurants, they support the schools, they support the person that sells groceries, whatever. Every little bit helps the population and the tax base, of course. Comment 353

Comment 354 Another thing is: When this comes in, our youth don't know anything about the wind, the turbines, everything like that. This is another career opportunity that they would have or be exposed to. They may get into it. If it grows here, maybe our children won't have to leave Montana to make a living. Maybe they won't have to leave this area. They might want to stay here and raise their families here. We need to look at that. We don't want to have to have our children leaving, and having a dead Montana. Nothing left. The land is great, but it's not worth anything if we're not on it. So that's an important thing to me.

Comment 355 And also we're in the construction business. This is an opportunity for my husband's and my company to maybe work here, instead of having to travel 100 miles each direction from our home. So this is really important to me, and

Response 353 to 355: Comments noted.

these are just comments from my heart.

MR. COMO: Thank you.

Comment 356 MR. IVERSON: I'm Gary Iverson. I'm the Mayor of the town of Sunburst, and I wanted to be here tonight to show the support of the City Council -- of course, Cathy is one of our council members -- the people of the town of Sunburst, the businesses of the town of Sunburst, the schools of the town of Sunburst, and the whole area; the support for business because we need industry, we need business.

Comment 357 This wind farm that's going to come in on top of this power line is a tremendous asset to our community. And we need the tax base. And I understand the problems with the power lines crossing land, and those type of things; and those need to be worked out, and they need to be worked out fairly. But we do not want to miss an opportunity like this to have this power line and to have the things that will come along with it. And that's all I've got.

MR. COMO: Thank you. Yes, sir.

MR. SITZMAN: My name is Tony Sitzman, and I represent the Glacier County Regional Port Authority as Chairman. I just want to read our

Response 356 and 357: Comments noted.

mission statement.

"The mission of Regional Port Authority is to promote, stimulate, and advance the general welfare, commerce, and economic development, and prosperity of our region."

Comment 358 Our region is Glacier County, the majority of which lies on the Blackfeet Indian reservation. The MATL will have a tremendous impact on the region, and will assist in potential wind development projects. The MATL will pump needed revenue into the tax base of our region, and will assist in our struggling economy.

Comment 359 The Glacier County Regional Port Authority supports the Montana-Alberta Transmission Line, and views it as a means of reaching our vision, which is to have a quality rural community with living experiences, opportunities, and amenities of urban living.

Comment 360 We are encouraging you to support the line, which has little environmental impact, but large economic benefits. We appreciate the attention you have given our request.

Comment 361 And along with this, I just want to thank everybody for coming. We were at the meeting last night, and in comparison, this is a

Response 358 to 361: Comments noted.

that 30 day cooling off period -- that's what we call it -- after we publish the final. So thanks. I'm sorry.

Comment 362 MS. CAVETT (phonetic): My name is Becky Cavett, and I'm on the Board of Directors of the Northern Rockies Medical Center here in Cut Bank. And as a member of the Board of Directors, we would like to pledge our full support to this economic opportunity for our area, so that we can of course increase our economic base, and provide jobs, and also improve any services that we can provide for the community and the area. Thank you.

MR. COMO: Thank you. Anybody else? Mr. Jones.

MR. JONES: I was wondering when the politicians are going to get going.

Comment 363 I guess I would share that I'm pleased. First of all, I want to thank MATL for addressing a whole bunch of the issues that they had earlier, including per pole payments, trying to work with their landowners, squaring up their lines, and trying to deal with a bunch of the land issues.

Comment 364 And there is a couple of things I always like bringing up. I always hear employment is

Response 362 to 364: Comments noted.

limited. And I guess in our rural areas, given that this system, when the windmills were fully in, employ potentially 60 to 100 people. That's not limited for us. That's probably a huge employer in a rural area. And when you consider the spin associated with it, the multiplier effect, it's even more than that.

Comment 365 And I guess a couple other items. I was asked today about the number of birds that would be damaged in the area, and I guess I wanted point out -- and as has been in your statements before -- the new wind mills turn very, very slow, and the number of bird deaths associated with it are entirely limited. I've heard folks say that it's less than when driving a car. So in fact I see numbers of 1.5 to two, and that's a good thing. And so I don't think for those folks concerned with the sports issue, this is a problem.

Another comment that came up after last night's hearing that I didn't mention -- and I'm trying to skip stuff that we've mentioned before so you don't have to go through it over and over again.

MR. COMO: We normally do this. The issue of bird strikes, that was come up from the

Response 365: Comment noted. See the discussion of Avian and Wildlife Issues in the Consolidated Responses section and the revisions to Section 4.9 in the EIS.

sportsmen, it was primarily from the sportsmen?

Comment 366 MR. JONES: Yes. There were just some concerns about that, and I know during talking with folks, and I'd actually researched some of those issues, it was not a huge number anymore. The old mills turned far faster, etc.

Comment 367 There was some issues that Alternative 4 came up, and they wanted to make sure it was pointed out there are several substations south of Conrad that Alternative 4 would bypass; and that there is a potential development straight to the west of Conrad referred to as the Sam George Hill that has some leasing going on along that area. And it would definitely increase the distance lines would have to be built from the Sam George Hill to interconnect with MATL by companies that currently own space on the MATL line.

Comment 368 Then just exporting. Montana, we export grain, and the benefit stays here. The farms stay here. We export beef, and the ranches remain here. And now we export or have the opportunity to export kilowatt hours, to export electricity, and have the tax base, the jobs and everything, remain here.

Comment 369 And so with that, thanks, all of you,

Response 366: See the discussion of Avian and Wildlife Issues in the Consolidated Responses section and the response to comment 7.

Response 367: Comment noted. MATL does not propose to interconnect to the two substations south of Conrad and has indicated to DEQ that there will be one point of interconnection at the Marias substation. DEQ is aware of an anemometer on Sam George Hill but is not aware of a planned wind farm there that would connect to the MATL line. Numerous parties are considering wind farms in the area, and it is difficult for the agencies to ascertain which wind farm is proposing to connect to which transmission line. MATL's customers include NaturEner, Wind Hunter, and Invenergy. NaturEner is beginning to construct initial phases of a wind farm southeast of Cut Bank but may have options in other areas. Invenergy has announced plans for a wind farm or wind farms north of Conrad and in the Cut Bank area. It is unclear where Wind Hunter may be proposing a wind farm or wind farms. See the discussion of Line Issues and Wind Farm Issues in the Consolidated Responses section.

Response 368 and 369: Comments noted.

for all your hard work, all of you folks for showing up on this. And actually one of my reasons to get up was to point out that we had a bus riding contest last night, and LeAnne lost. Comment 369 (Cont.)

WOMAN SPEAKER: I was a graceful loser.

Comment 370 WOMAN SPEAKER: Sam George Hill is proposed for wind farms? Mr. Jones? Wind turbines are being proposed in this area called Sam George Hill?

MR. JONES: Yes. There is an area straight west of Conrad that we call the Sam George Hill. I don't know if that's what it is called on the map.

WOMAN SPEAKER: Thank you.

Comment 371 MR. REYNOLDS: Hi. I'm Marty Reynolds. I'm with Border States Electric out of Billings, Montana. We employ about 30 people. We do a lot of work with the electric utilities. We hope to be involved in this project because we have a lot of jobs in Billings, that with our down turn in the economy, this would help. Anytime we can utilize our natural resources in Montana and create more jobs here, I think it's a good deal for everyone. Thank you.

MR. COMO: Last time when there was sort

Response 370: Comment noted. See the response to comment 367. Last year, DEQ noted the anemometer on Sam George Hill, and it is shown on Figure 4.1-2.

Response 371: Comments noted.

of a lull in the action, we said we could take a little break and wander around.

WOMAN SPEAKER: I actually have a question, and Lew Jones asked me to ask this question. But he would like to know where the cookies are.

MR. BLACK: For the record, my name is Jerry Black. I represent Senate District 14, which includes most of Glacier County, Pondera County, Toole County, Liberty County, and Choteau County.

Comment 372 This wind project is extremely important to all of the area, not just in Glacier County and Toole, but the entire area. I think this is probably one of the greatest economic development opportunities since the discovery of oil in northern Montana, since the building of the Burlington Northern Railroad. There are so many spin offs. When you talk about over $1 billion in investment, that is a huge amount of money. That's going to have a great impact on the total area.

Comment 373 You've all heard everybody testify why we need it: Declining school enrollments, loss of tax base, loss of jobs, devaluations of land.

Response 372 and 373: Comments noted.

Well, this could very well turn that all around, and I think it will.

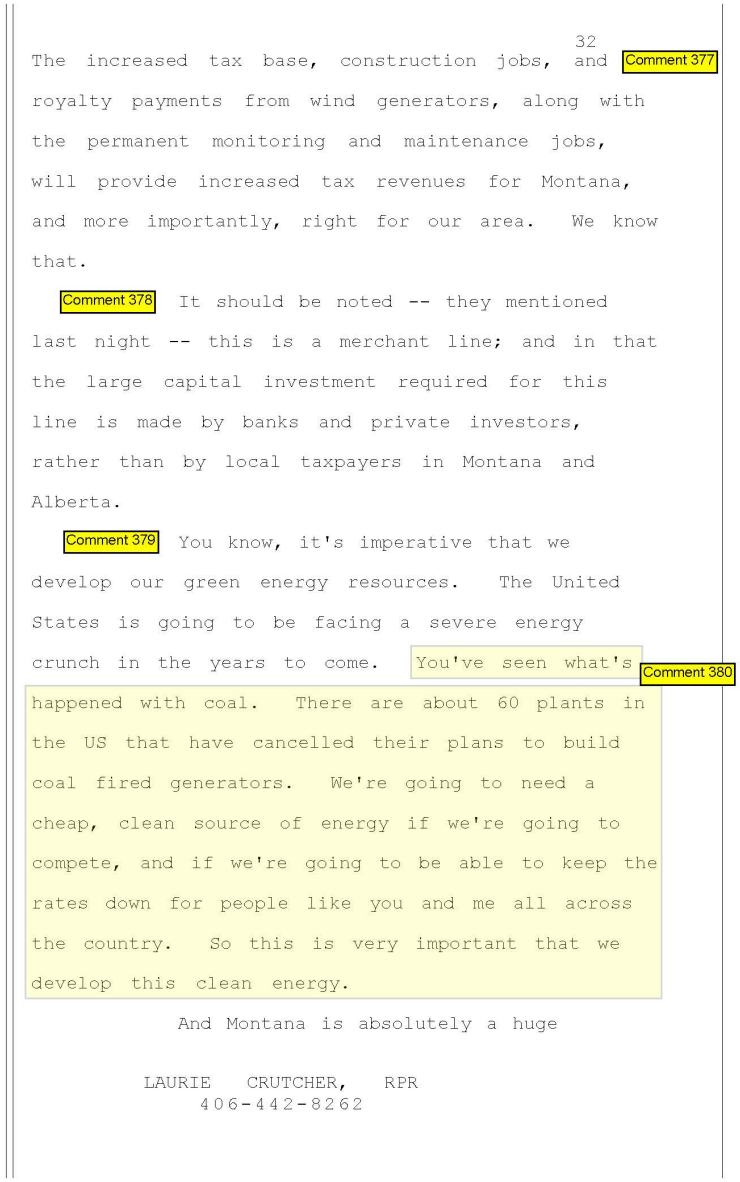
Comment 374 MATL is demonstrating a willingness to work with the landowners to address concerns regarding the routing of transmission lines and placement of poles that would be potentially disruptive to their agricultural operations. It kind of got off, if you will remember, to a rough start at the very beginning; but since that time, they have changed their attitude. They're willing to work with people, address those concerns.

Comment 375 Now, you are never going to make everybody happy. I don't care what you do, somebody is not going to be happy with it, whether it's MATL or whether it's some landowners. We know that. But this line will improve the reliability of electric transmission system in both Montana and Alberta by making these regions less vulnerable to outages, creating a greater opportunity to import and export electricity, all of which can benefit consumers and suppliers.

Comment 376 The MATL line could very well provide another opportunity for some of our energy companies in Montana, electric co-ops, to find another bidder for electricity when they need one.

Response 374 and 375: Comments noted. See the discussion of MATL's revised compensation package and alternative dispute resolution process in the EIS, Sections 2.3 and 3.13.3.

Response 376: That may be true, but it would depend on the transmission line owners and other external factors. Potential impacts of the proposed line on electrical transmission system operation are discussed in Section 3.17.



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The increased tax base, construction jobs, and royalty payments from wind generators, along with the permanent monitoring and maintenance jobs, will provide increased tax revenues for Montana, and more importantly, right for our area. We know that. Comment 377

Comment 378 It should be noted -- they mentioned last night -- this is a merchant line; and in that the large capital investment required for this line is made by banks and private investors, rather than by local taxpayers in Montana and Alberta.

Comment 379 You know, it's imperative that we develop our green energy resources. The United States is going to be facing a severe energy crunch in the years to come. You've seen what's happened with coal. There are about 60 plants in the US that have cancelled their plans to build coal fired generators. We're going to need a cheap, clean source of energy if we're going to compete, and if we're going to be able to keep the rates down for people like you and me all across the country. So this is very important that we develop this clean energy. Comment 380

And Montana is absolutely a huge

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Response 377 and 378: Comments noted. See Section 3.13 and Economic Issues, Tax Issues, and Socioeconomic Issues in the Consolidated Responses section.

Response 379: One objective of the proposed action is to support development of wind power, which is a green energy source.

Response 380: Comment noted.

resource for wind. It's one of the best sources in the North American continent, and we have to use that wind energy. I think it's very Comment 381 important, when these decisions are made on routing and the alternative routes that are going to be taken, that they display a very sound balance between the landowners and MATL. You know, they both have to have their concerns met.

Comment 382 One of the -- I think Option 4, if I read in the EIS, concerned me because it said Option 4 could increase the cost to MATL by $7 million, and delay the project for up to one year. I think that's very disturbing. And MATL has said, you know, that option could very well jeopardize the project. So that's why we have to strike an equal balance between what MATL needs and what the landowners need, and that's their decision that they'll be making as to which of those options they will decide upon.

Comment 383 I believe we've got to be fair to all of the parties involved. We want to take care of the landowners. They should be compensated fairly and respectfully for the cost of farming around those poles. There is no doubt about it. And that is one of their great concerns.

Response 381: Comment noted.

Response 382: Comments noted.

MATL outlined its concerns regarding Alternative 4 in its letter to the DEQ of March 28, 2008, and summarized those concerns as follows: "Of the route options proposed, Alternative 4 is materially longer in length. As a consequence: it impacts more landowners; has a larger footprint; may span more unstable soils; may have a greater potential of encountering archaeological and heritage resources; and has higher energy losses."

Response 383: See Farming Issues in the Consolidated Responses section as well as the discussion of MATL's revised compensation package and alternative dispute resolution process in Sections 2.3 and 3.13.3.

Comment 384 This was a big issue in the Legislature session in the last session. Lew carried it through the House, and I and several other senators nurtured it through the Senate, and this had wide support. And I'll have a letter to submit that will have a lot of senators and state representatives sign on supporting this project. We definitely need it. We want it. It's good not only for our local area, but for the state of Montana, and for the whole nation for that matter, and we're going to see a lot of this being done across the country.

Comment 385 So thank you very much. I want to compliment the DEQ and the Department of Energy for the great job on the EIS that you prepared, was excellent, and for holding these hearings. Thank you very much.

MR. COMO: Thank you.

Comment 386 MR. KEMMITT (phonetic): For the record, I'm Marvin Kemmitt. We farm and ranch southeast of Cut Bank. MATL line will go across us. I'm here to show support for it. The impact to us will be very slight, and the impact for Glacier County and the state would be very great.

I also sit as Vice President of Glacier

Response 384: Comments noted. Your comments and those of the other legislators in the letter are noted.

Response 385 and 386: Comments noted.

Electric Cooperative; and through board discussions, we would like to confirm our support for the MATL line. Thank you. Comment 387

Comment 388 MS. KAVANAGH: I'm LeAnne Kavanagh. I'm President of the Cut Bank Area Chamber of Commerce. I was one of the ones who went to Great Falls last night. I read the letter of support from the chamber at that meeting, so I won't go over it again tonight, but it was a pretty good letter. What I do have here, though, is approximately 20 letters of support from various chamber members, retired citizens of our community, local small business owners, and some ag producers who would offer their support to the MATL project. I'm not going to read them all. I'm just going to enter them into the record. Thank you.

MR. COMO: By the way, everybody, if some of you represent like a lot of developers and large groups of people, if you want to help us get a decision out quicker, okay, a letter -- getting a single letter with 200, 300 people signing it, that's the most efficient way, assuming everybody wants to say the same thing. I'm not telling you what to do. But like if everybody is going to

Response 387: Comment noted.

Response 388: The letters were accepted as individual letters, entered into the record, and responded to along with all other letters received.

that's not how this country was meant to work. And you folks are here, and you're doing a great thing, and I just want to send my appreciation to you for that fact.

It's been reinvigorating a little bit for me to be here and see some of this, and not just go, "Well, I don't know if I'll have any impact, so I might as well not be here." The fact that you're here tonight is doing great things, not only for yourself, but for the future generations of us up here in north central Montana.

So I just wanted to say thanks to everybody in the audience tonight, and if there is anything I can do for you, catch me at the end. I'll be floating around. So thank you.

MR. COMO: Thank you.

Anybody else? Yes, sir.

Comment 389 MS. HARRISON: I'm Shannon Harrison with Sweetgrass Development, I'm the Executive Director there. And I won't bore you by repeating all of the wonderful positive things I've heard tonight, but I do want to offer Sweetgrass Development's full support on this project.

MR. COMO: Would anybody else like to --

Response 389: Comment noted.

Go ahead.

MALE SPEAKER: I have one -- This question is just killing me, and I need to ask it. Comment 390 Everybody in this room is probably my age, or some is younger, some is older. How many of us have kids that work out of state? Could we have a show of hands? There is the reason we need the power line, okay? Thank you.

MALE SPEAKER: Most are younger.

MR. COMO: I recognize you, but I can't remember your name from last night. I'm sorry.

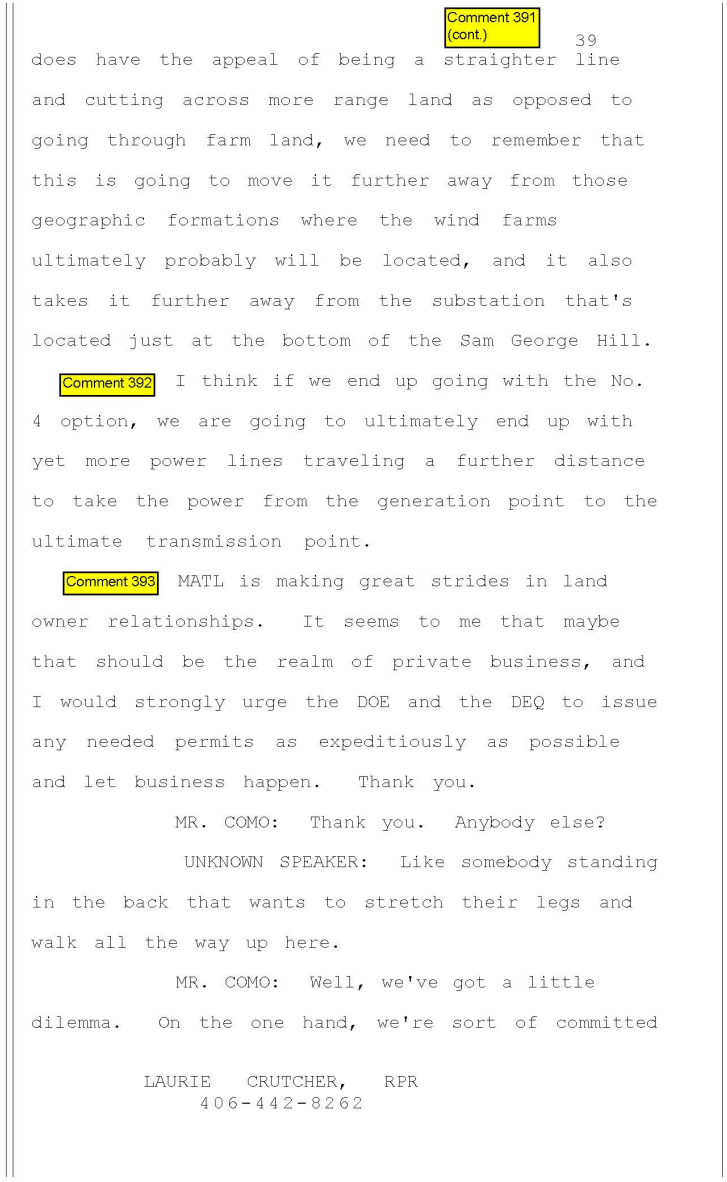
MS. BROESDER: I'm Sandy Broesder. I'm Pondera County Commissioner. And I'm not going to speak as a Commissioner tonight. I want to speak as a land owner who owns land west of Conrad. Our farm is called Broesder Ranch, Incorporated.

Comment 391 We've a number of wind experts come around our area, and they tell me that they look for certain geographic formations, that if they can catch the wind at the apex of a hill, it has more energy than wind that's blowing across a flat surface. That's one of the reasons for the interest in areas like the Sam George Hill and the Belgian Hill.

If we look at Alternative 4, while it

Response 390: Comment noted.

Response 391: At their closest, Alternatives 2 and 4 are about 3.5 and 7.6 miles, respectively, from the anemometer location on Sam George Hill. See the response to comment 367 for more information and the discussion of Line Issues and Wind Farm Issues in the Consolidated Responses section.



Comment 391 (cont.)

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does have the appeal of being a straighter line and cutting across more range land as opposed to going through farm land, we need to remember that this is going to move it further away from those geographic formations where the wind farms ultimately probably will be located, and it also takes it further away from the substation that's located just at the bottom of the Sam George Hill.

Comment 392 I think if we end up going with the No. 4 option, we are going to ultimately end up with yet more power lines traveling a further distance to take the power from the generation point to the ultimate transmission point.

Comment 393 MATL is making great strides in land owner relationships. It seems to me that maybe that should be the realm of private business, and I would strongly urge the DOE and the DEQ to issue any needed permits as expeditiously as possible and let business happen. Thank you.

MR. COMO: Thank you. Anybody else?

UNKNOWN SPEAKER: Like somebody standing in the back that wants to stretch their legs and walk all the way up here.

MR. COMO: Well, we've got a little dilemma. On the one hand, we're sort of committed

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Response 392: See the responses to comments 367 and 391. Also see the discussion of Line Issues and Wind Farm Issues in the Consolidated Responses section.

Response 393: See the discussion of MATL's revised compensation package and alternative dispute resolution process in Sections 2.3 and 3.13.3.

yourselves -- if you want to leave, fine. If you don't, we'd rather have you stay -- and then open the record again, and if there are any additional questions --

MR. COMO: We could take a 15 minute break, at a quarter after seven we'll reconvene. You can leave if you want before then, and if not, then we'll just close it up then. Thanks.

(Recess taken)

MR. RING: For those of who came in a little bit late, the purpose of the meeting is to take comments on the Environmental Impact Statement that's being circulated. We're going to ask -- There is a general guideline that comments be submitted to us by March 31st, and we can assure you those that get in by that date are going to get the most attention.

So I believe we had one gentleman during the break indicated he wanted to speak, so if you could take the floor. And if there is anybody else, we'll take you one at a time, and after these are done, we'll close out the hearing for tonight.

Comment 394 MR. PEARSON: Hi. My name is Gabriel Pearson and I'm from Oilmont, Montana. Forty

years ago, I was in a little country called Vietnam. I had two real close friends that were killed right next to me. And you know who was taking all our draft dodgers at that time was Canada. Comment 394 (cont.)

Now, a few questions I want to come up with. I understood by the news last night Ronald Ontario, Canada will be in charge of this project. Where is our side of the story in the United States? I think it should be equal and fair. I'm all for making money, but I'm not for making money over Veterans that have spilled their blood. And we have what -- the position in our country right now, we can't drill it, we can't mine it, we can't log it, but we'll let her burn, and we've got to put a stop to this sometime.

I know everybody is for this project. I'm for making money, but not on the backs of people that give their life for this country. I'm one of them. I'm a totally disabled American Veteran. It's not too fun to go through cancer or heart ailments. It's very important for me to stand up for those Veterans that died. They says, "If you ever make it back to the United States, you let those people know what we went through in

Vietnam." I'm letting you know.

I grew up with the Chief Justice of the Supreme Court of Canada, her name was Beverly McLaughlin, her maiden name was Beverly Yeats (phonetic) out of Benger Creek (phonetic), Alberta, Canada.

They have a very liberal government up in Canada. Alberta, the crown lands, support most of Canada. If we get tied in with them, we're going to support the same government which I'm definitely against: Gays, homosexuals, lesbians. Money is good to be made; but on the wrong reason, wrong objective, and wrong motive, we'd better watch what we're doing. I'm just -- There is always opposition to things, as Jerry Black said, but what the deal is, what is our end goal.

Now, I understand this transmission line will take all of the electricity and stuff that people put into it, but there is a lot of other things that can be developed in eastern Montana. We have oil wells that are making millions of dollars a day. My Grampa is from Lake Night, North Dakota, which is Burke County, and what the deal is, we have the same position here.

We have the environmentalists that --

it's too pretty to drill, and there is one little problem. We already drilled it. If you look at Dupuyer, they have all these pump jacks that go up and down, and they're not pumping air. The other place we drilled was at Black Leaf Canyon. In the news the other day, it says, "This mountain front has not been touched." Well, if you check the geological records and the drilling permits, you will find that Pearson No. 1 Texaco was drilled right in the Black Leaf Canyon, and there is a lot of gas there. But we won't develop this because it gets too pretty to drill.

We have coal plants that can't be put in because they're creating emissions. And when I was a kid, I rubbed dimes and stuff with the mercury that we had as kids. And what the deal is, the mercury that comes out of this coal plant is less than what we are accustomed to, what we grew up with, but it doesn't get both sides of the story.

And what I'm standing up for is: Let's make certain we get our fair share, instead of giving the control to Canada. Thank you.

MR. KRONEBUSH: My name is Ted Kronebush. I'm from Pondera County. As a private

Response 394: Comments noted.

citizen, I think it is also important that we utilize the available taxable assets that will be generated --

(Flip the tape)

Comment 395 MR. KRONEBUSH: -- the taxable assets that will become available with a project of this with spurn the other activities that will come along with this, are also important to all of our communities. I think that there isn't a person in here that doesn't understand what the value of lowering our personal property taxes are, and how important it would be for us to do that. And with that, thank you very much, and I would support the MATL line.

MR. COMO: Anyone else?

Comment 396 MR. SITZMAN: I have a question. Tony Sitzman. I hear about farming around these uprights that are going to hold the line. What would be the problem of moving them? The shortest distance between two points is a straight line, but what difference would it make if the straight line was over on a section line rather than running down through the middle of someone's property? If the person didn't own both sides of the section, all they would be doing is going

Response 395: Comment noted.

Response 396: As the agencies understand Mr. Sitzman's suggestion, it is to place the structures on section lines rather than in the interior of fields because the landowner would typically farm around only one side of the structure when placed on section lines. MATL is prepared to work with landowners to achieve a similar benefit by placing interior structures along field strip boundaries where the landowner farms that land in strips that are narrower than a full quarter section (Williams 2008d).

around it. It wouldn't be going around it, it would just be pulling into the field aways.

Comment 397 I'm no engineer or anything else, but it just seems to me that if you stayed away from the center of the property, and stayed to the property lines, it would make a lot more sense.

Comment 398 FEMALE SPEAKER: I'd like to ask one more question for those of you who are left. Based on what everyone has heard tonight about Alternative 4, could we have a show of hands of the people that are here tonight, that understood those four alternatives, that would be against Alternative 4?

MALE SPEAKER: Against Alternative 4?

FEMALE SPEAKER: Against Alternative 4. Six people.

MALE SPEAKER: How many people do you think we lost?

FEMALE SPEAKER: A lot. At least 16.

MALE SPEAKER: How many people would be undecided?

FEMALE SPEAKER: Undecided, would you like to raise your hands? There is one undecided. And those who didn't raise their hands, does that mean you're for it? Do a count down.

Response 397 and 398: Comments noted.

MALE SPEAKER: You know, another problem we could solve is had we just divided US and Canada on the Mississippi River, we wouldn't be having all these problems. Tony, you wouldn't be here. We'd just have the DEQ. You'd be lonesome, Tom.

MR. RING: Well, I could get along.

FEMALE SPEAKER: Do you have to address that comment? You don't do that.

MR. COMO: Probably not. The way we -- "Commented noted."

MR. RING: Are there any other comments on the Environmental Impact Statement?

MR. COMO: I'd like to -- we'll probably just close the record now. This is not --

Comment 399 FEMALE SPEAKER: I should have clarified this. They don't have to go with just one alternative, right? You can use a combination of the four alternatives. So just for clarification for the audience, you can say you're against Alternative 4, but they still may use one, two, or three, and a little bit of four. So am I correct in that, Tom?

MR. RING: Well, I believe one is the no-action alternative, so we probably wouldn't use

that in combination with the others. But Alternatives 2, 3, and 4, and the local routing options that we've identified in the document, more or less bracket the range of possibilities. If in your comments you come up with a new idea, an adjustment in alignment, submit that, and we'll try to take care of it.

Under the State process, if there is something new that is not proposed by MATL, we have to notify the affected owners of that property, so we'll be making those contacts if any such suggestions do come in. But yes, what's laid out there brackets a fairly large range of possibilities of segments connecting each other, interconnecting one to another, and there is all sorts of permutations that could occur. We'll try to pick the alignment that minimizes adverse effect, while still keeping cognizant of the costs involved both to the landowners and to MATL.

MR. COMO: That was a good point. And from the federal point of view, anything, any decision that's made, we are probably going to be looking primarily towards the State. Okay? In every one of these things, the State, they're sort of where the rubber meets the road. They know the

local community much better than us, their siting and approval criteria is a lot more extensive than ours is.

So obviously we're going to give a great deal of deference to any kind of opinions that DEQ has; and anything that they might come up with, or that any of you might further suggest, that already is studied in the EIS in some way, or shape, or form, would be fair game. We don't necessarily have to go back to the drawing board. If we've already covered the environmental impacts of something, and there's little variations on it, and what we've studied is already encompassed in that, that's really no problem.

Well, with that, I guess we'll close the record. I just want to thank everyone.

* * * * *

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Response 399: The agencies could combine elements of Alternatives 2 through 4 or the local routing options. Alternative 1 is the No-Action alternative, so the agencies could not use that alternative in combination with elements of other alternatives.

So then we'll start calling people. Roy Hollandsworth. I've butchered his name all week long.

Comment 400 MR. HOLLANDSWORTH: Thanks, Tony. The reason you got it right, I printed it this time, so that makes a difference.

I've been to all three of these, and this is round three. I'm going to give you an overview of what I've seen. In Great Falls, there was -- there is almost as many here as we had in Great Falls. But the meeting was mixed, I thought. It could have went either way. There was some grumbling from the farmers that the poles weren't in the right place, and they wanted money, and that seems that will be addressed in this thing.

But what really turned the meeting around in my mind was the bus that came from Cut Bank, Shelby, and Conrad, and went down there. Everybody was positive, and you could see the meeting turn around. And the best one liner at Great Falls was the guy from Cut Bank, an elderly gentleman, that says that says, "I'm a Native American of Irish descent."

So then we went from there, and last

The following responses are to comments received at the public hearing in Conrad.

Response 400: Comment noted.

night was Cut Bank. And I have to tell you, I've never seen a community -- I'm proud to be part of the Highline. That whole community, 100 percent, wants this project. They know what it means to the town. The farmers said, "I know it's -- I've got a farm under those power lines, but we're doing it for the community," they know what it's going to do.

Comment 401 So keep all this in mind, because the benefits far outweigh -- and I don't like farming around poles, and I have none of them on my place. I wish the line was going out there, because then I could put a wind farm in, and that's going to be the spin-off. But you guys are going to have your work cut out here to make it as positive as Cut Bank did. They were really good. So more power to you guys. Thank you.

MR. COMO: The next one that is signed up -- By the way, we're calling up people who have checked that they want to speak. We'll go through those checks, and then that doesn't mean that that's not your only bite at the apple. So as we go through the evening, you change your mind, and you want to say something, just come on up, tell Ellen, tell myself, just step up to the microphone

Response 401: Comment noted.

when everybody is done. And just because you've spoken once doesn't mean you can't speak again. So this is pretty informal. All right?

Brett Doney.

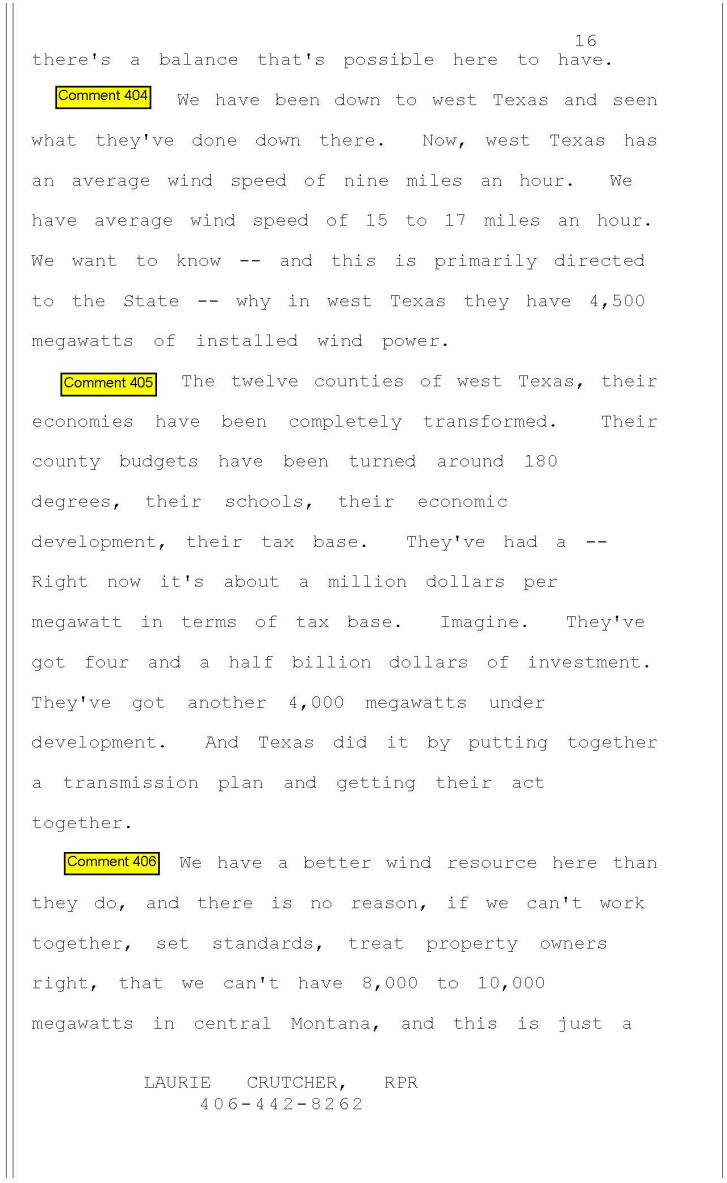
Comment 402 MR. DONEY: I'm Brett Doney with the Great Falls Development Authority. We're a regional economic development group based in Great Falls, but we provide services in the entire eleven county central Montana region.

We're very much in support of this project. We have a couple of concerns. First of all, with regard to the draft EIS, a very thorough job, took longer than any of us wanted, but we think it covered all of the issues. We do believe that the process has gone on much too slowly.

Comment 403 In terms of the need from an economic development standpoint, energy is a target industry of ours. We think there are tremendous opportunities here in central Montana. You can't have wind energy development without transmission, just like you can't have agriculture without highways and railroads to export the product. We think energy can be a wonderful export product.

There does need to be a balance between property owners and the transmission, and we think

Responses 402 and 403: Your comments are noted.



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there's a balance that's possible here to have.

Comment 404 We have been down to west Texas and seen what they've done down there. Now, west Texas has an average wind speed of nine miles an hour. We have average wind speed of 15 to 17 miles an hour. We want to know -- and this is primarily directed to the State -- why in west Texas they have 4,500 megawatts of installed wind power.

Comment 405 The twelve counties of west Texas, their economies have been completely transformed. Their county budgets have been turned around 180 degrees, their schools, their economic development, their tax base. They've had a -- Right now it's about a million dollars per megawatt in terms of tax base. Imagine. They've got four and a half billion dollars of investment. They've got another 4,000 megawatts under development. And Texas did it by putting together a transmission plan and getting their act together.

Comment 406 We have a better wind resource here than they do, and there is no reason, if we can't work together, set standards, treat property owners right, that we can't have 8,000 to 10,000 megawatts in central Montana, and this is just a

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Response 404: In both states businesses that use, manufacture, or install wind energy generators can receive franchise tax deductions and/or exemptions. There are also property tax exemptions involving wind energy generation for business installation or for the construction of such systems.

Probably the largest differences in wind development between Montana and Texas are in the states' respective populations, renewable portfolio standards, and prices paid for electricity. Montana has a population of about 950,000 and consumes about 28,000,000 MWh/year while Texas has a population of about 24,000,000 and consumes about 400,000,000 MWh/year. Montana has a renewable energy portfolio requirement of 15% or about 450 average MW applied to its utilities in the year 2015. In 2005 Texas passed a renewable energy portfolio requirement of 2,000 MW by 2009. This has been expanded to 5,580 MW by 2015.

Lastly, the price paid for electricity is higher in Texas than it is in Montana as shown below. Higher prices could make it easier to attract investors in Texas than Montana.

Average Retail Prices (cents/KWh)		
	Texas[1]	Montana[2]
Residential	12.86	8.28
Commercial	9.85	7.44
Industrial	7.82	5.12
Transportation	8.42	NA
All Sectors	10.34	6.91

Source:
[1]http://www.eia.doe.gov/cneaf/electricity/st_profiles/sept08tx.xls
[2]http://www.eia.doe.gov/cneaf/electricity/st_profiles/sept08mt.xls

Responses 405 and 406: Comments noted.

part of it.

Comment 407 Our region is far too dependent on defense and agriculture, two wonderful industries that we want to see continue, but let's face it. We have very little control over what the Department of Defense does, and we don't have any control over the weather or what rural commodity prices do. Right now, things are looking very good, but we lost a missile squadron, and that's going to be a tax hit on the rural counties.

We formed a diversification project working with Sweetgrass Development that we're kicking off. We're targeting two industries, agri processing and energy. We think there is a lot of potential, and there is cross over with bioenergy and things like that. But the best opportunity that we have right now for immediate tax base is wind development. So we've got to figure out a way that we can all sit down and work together and make it happen.

Comment 408 Lastly, on the need from the transmission grid standpoint, this line will add quite a bit of reliability and flexibility to the transmission grid that we have now. And the transmission grid, something to keep in mind is

Response 407: Comment noted.

Response 408: NorthWestern has announced plans to construct a new gas fired generation plant near Anaconda, MT to satisfy its load balancing challenges. While the MATL line would certainly open new possibilities for load balancing for NorthWestern, NorthWestern may have other options available for load balancing. Also see Line Capacity Issues in the Consolidated Responses section.

that NorthWestern has had problems. They are out of balance a number of times, and there is a safety margin, and they have dipped below the margin. So having this opportunity to share power with our neighbors in Alberta will strengthen our overall regional grid, which is important to all of us.

Comment 409 So just I want to close. Thank you for the opportunity, but please expedite the process, issue a decision. We like what we've seen in Alberta. They've issued a decision with conditions, and MATL is now working to meet those conditions up in Alberta, and take care of the property owners. We think the same could be done here.

MR. COMO: The next person is Ted Crawford.

Comment 410 MR. CRAWFORD: I just wanted to say that I'm not against the line, but I would like to see where the -- (inaudible) -- power goes. I would like to have it go straight down the fence line, single pole, and that would be fine, because my son and grandson are here, and they farm to the farmer, and we have all big equipment, and we can't be turning around and missing the ground

Response 409: Comment noted.

Response 410: Also see Farming Issues in the Consolidated Responses section.

that we can't see. So with single poles, we can swing around them without any trouble, and that's my comment -- (inaudible) -- big equipment.

MS. Como: Sandra Broesder.

MS. BROESDER: Last night I spoke a little bit, and I said I didn't have my Commissioner hat on, but tonight I do have my Commissioner hat on. I am speaking on behalf of our entire Board of Commissioners. Cindy Johnson is currently in China. She won't be here tonight. Joe Christiaens has been at the meetings, both in Great Falls and in Cut Bank. He had a medical procedure today, and he won't be here tonight. So you're stuck with hearing from me.

Comment 411 The Board of County Commissioners strongly supports construction of the Alberta Tie Line. There are plenty of reasons to support this construction. If environmental concerns were your only criteria, the minimal trade-offs imposed by this new construction would be well worth the value to our society and to the environment, simply for the capability to transmit clean green power.

Comment 412 Given the fact that most of the carrying capacity of the line has already been obligated to

Response 411: Comment noted.

Response 412: Because the capacity rights are a commodity that may be resold or traded, the original purchasers may not be the power suppliers that use the line. MATL has indicated that capacity rights contracts do not require the use of any particular form of power generation (Williams 2008b).

wind developers, transmission of renewable energy seems assured.

Comment 413 As Commissioners, we are responsible for the fiscal operations of Pondera County. We look to the construction of this line and the associated wind generation facilities as a way to broaden the tax base, or simultaneously alleviate the tax burdens on our existing taxpayers. The approximately $260,000 in property taxes that would come directly from the line would be a more than welcome addition.

Comment 414 The transmission line would also be catalyst for wind farm developments such as that in Judith Gap. MATL project pays approximately $1.2 million in taxes to the county in which it is located. To put that into perspective, Pondera County's entire budget for fiscal year 2008 was right at $7 million. This is a big impact, folks. From an economic point of view, factoring in additional people, businesses, and support services, both for line itself and for accompanying wind towers, the positive fiscal impact of this project could be critical for the sustainability of our communities.

As Commissioners, we also have a duty of

Response 413 and 414: Comments noted.

care towards all of the residents in the county, which includes a variety of businesses, as well as agriculture. With all three Commissioners involved in business, and two of our three Commissioners actively involved in the production agriculture, it is a duty we take seriously.

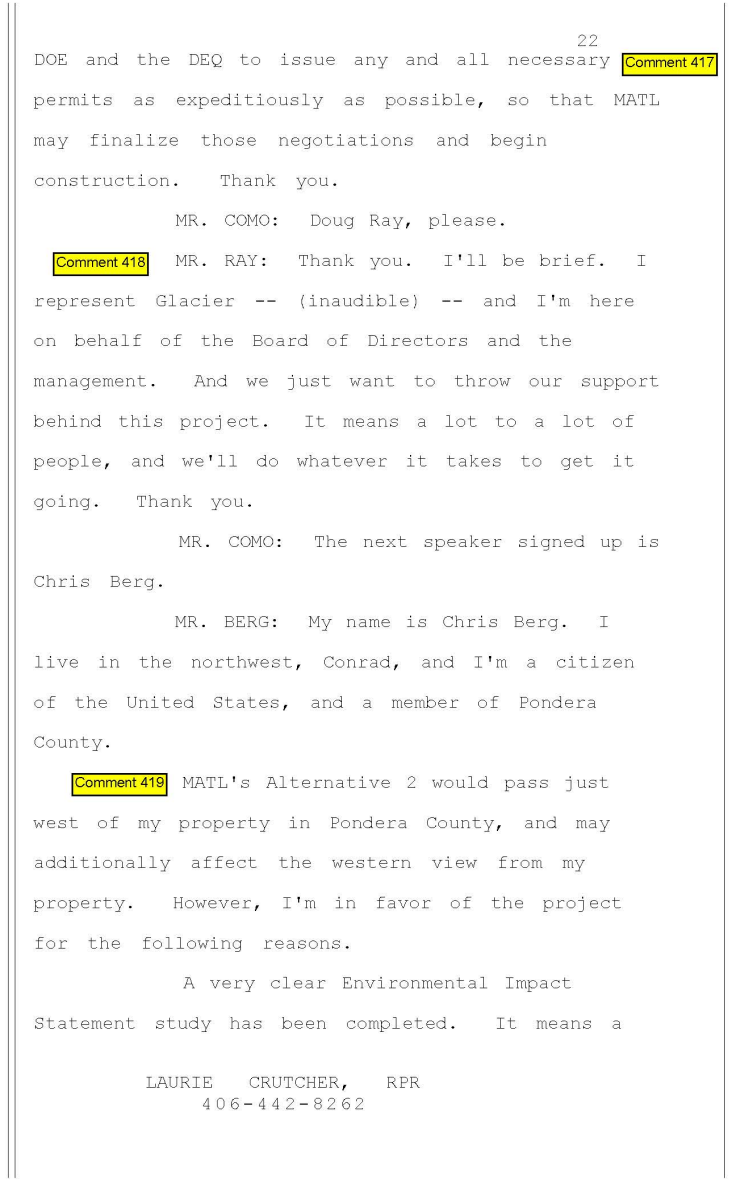
Comment 415 There is no denying that farming around power poles is costly, inefficient, and there are a whole variety of politically incorrect adjectives that can be used to describe the process. It follows logically that it's much simpler to farm around single pole structures that are located on section lines, as opposed to double pole structures that were initially proposed in the diagonal crossings. To the extent practical, monopoles should be utilized. This line needs to be built right, but it must be built.

Comment 416 All stakeholders need to recognize that both MATL and farmers face serious financial consequences based upon these placement decisions, and an equitable balance has to be achieved.

Many of the concerns that we have heard regarding compensation for poles should be business negotiations between MATL and private landowners. To that end, we would urge both the

Response 415: Comment noted.

Response 416: MATL has proposed a revised compensation package and an alternative dispute resolution process. They are described in Sections 2.3 and 3.13.2.



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DOE and the DEQ to issue any and all necessary permits as expeditiously as possible, so that MATL may finalize those negotiations and begin construction. Thank you.

MR. COMO: Doug Ray, please.

MR. RAY: Thank you. I'll be brief. I represent Glacier -- (inaudible) -- and I'm here on behalf of the Board of Directors and the management. And we just want to throw our support behind this project. It means a lot to a lot of people, and we'll do whatever it takes to get it going. Thank you.

MR. COMO: The next speaker signed up is Chris Berg.

MR. BERG: My name is Chris Berg. I live in the northwest, Conrad, and I'm a citizen of the United States, and a member of Pondera County.

MATL's Alternative 2 would pass just west of my property in Pondera County, and may additionally affect the western view from my property. However, I'm in favor of the project for the following reasons.

A very clear Environmental Impact Statement study has been completed. It means a

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Response 417: Comments noted.

Response 418: Comment noted.

Response 419: Your comment is noted. See the discussion of Visual Issues in the Consolidated Responses section.

very minimal impact on the -- (inaudible) -- 23
environment of both farm. Several designs and
construction methods have been incorporated into
the project to minimize the environmental impact
at the cost of MATL. I believe MATL has gone to
great lengths to meet the concerns of persons and
entities at the top of the line, including changes
in pole types, and monetary compensation for those
affected.

Comment 420 MATL's project is good for the state and
local economies of Montana. Rural communities
will benefit from the construction, future
maintenance, and tax revenues paid by MATL, which
could be critically important for rural areas of
Montana now and in the future.

Comment 421 This project will enable several wind
turbine farms to operate in north central Montana.
Wind energy is a very environmentally friendly
electrical generation resource that without this
line would not be possible. This project, in
combination with wind generation, will be seen by
other investors, and will help Montana become
recognized as a place to develop renewable energy
resources.

In the end, I do believe there is some

Response 420 and 421: Comment noted.

sacrifice by those who farm lands or are crossed by those lines. However, many of those concerns have been met. This line is critically important for Montana and its rural communities, including Conrad. Comment 422

Comment 423 Furthermore, I'm extremely disappointed that I was not contacted by MATL as a land owner whose land would be bordered by the line. Just this evening looking at the new map, I made this discovery. I believe it's due process that I be contacted as part of the process. The new alternative is an alternative to Alternative 2 northwest of Conrad, and I was not aware it may cross or border my property.

I am, however, still in favor of the line, but I would like to be better informed. Thank you for the opportunity to testify.

MR. COMO: Harold Olson, please.

Comment 424 MR. OLSON: Tom, Tony, and the rest of the committee here, we thank you for giving us this opportunity to tell you our feelings about the MATL line. I am Harold Olson of Conrad, and I represent the Pondera Economic Development Corporation, and the corporation has been in the economic development business for over 30 years.

Response 422: Comments noted.

Response 423: See the revision in Section 2.6.5.

Response 424: Comment noted.

Comment 424 (Cont.) This is one of the greatest economic development possibilities that we have. We have seen the demise of lumbering in Montana, mining in Montana, the demise of many energy sources; and with that, we need alternate energy transmission lines, so that development of wind power becomes more feasible. So I speak on behalf of the Board in favor of this project. Thank you.

MR. COMO: Chris Stephens.

MR. STEPHENS: Hello. My name is Chris Stephens, and my family farms in the county where this line is being built. We will have at least a mile to a mile and a half of this line, depending upon the route.

Comment 425 I myself was personally disappointed in all the County Commissioners and local businesses, who are more concerned with the needs of MATL than they are of long time faithful taxpayers. We aren't asking for much. We are asking only for a design of this line in a manner that the local cooperatives have long recognized as the proper design for the power infrastructure. It is not a coincidence that the resistance of this line begins with the start of the diagonal at Conrad, and continues south to Great Falls, and sets the

Response 425: Comment noted.

diagonal.

Comment 426 One has to remember that along this portion of line, we aren't talking about one diagonal line, we are talking about two diagonal lines. There is already a diagonal line that we have had to live with for thirty years.

Comment 427 The northern portion of this line has all of the benefits, the north/south orientation and the wind development; the southern all of the impacts, the diagonal, and no wind development.

Since I have owned my farm east of town here, I have had two power lines, a gas line with a pumping station, and a fiberoptic line cross this farm, and none of them provide service to my farm. I did not oppose them. I am not against progress.

Comment 428 We talk about the tax base and the economic development MATL brings to these communities. Let me share the tax base and the economic benefits my family provides. We pay $26,539 in taxes in Pondera County; $64,210 in Teton County; $39,896 in Cascade County; $2,783 in Choteau County; for a total of over $133,000 annually property taxes.

By -- (inaudible) -- to have a line

Response 426: The agencies realize that an existing 115 kV transmission line already crosses fields on a diagonal.

Response 427: Comment noted.

Response 428: Comment noted.

built on its property on Teton County, spend $315,000 at front line angle over the last three years for an average of almost $79,000 a year. I myself have spent over $80,000 in the last two months -- (inaudible) -- my day. This is just one business. Comment 428 (Cont.)

We support many other businesses in Conrad. I am disappointed and angered by the lack of support of the Conrad community. We're asking only for this line to be built so it doesn't negatively impact the people that supported the schools and businesses before MATL arrived, and will be here long after MATL leaves.

Comment 429 The State of Montana, through the generosity of its tax policy, have given MATL a tax break of between $2.1 million and $2.3 million annually, over $100 million over the projected fifty year lifetime of this project. It's time that MATL shows generosity, and to agree to spend the $4 million to $7 million to build Alternative 4 monopoles. After all, they're actually using our money to build it with.

Comment 430 MATL could also show its generosity by purchasing the entire 105 foot easement that they will exercise complete control over, not just the

Response 429: See Tax Issues in the Consolidated Responses section.

Response 430: MATL has changed its proposal and would purchase the 105-foot easement. See Farming Issues in the Consolidated Responses section.

45 foot piece, not just the 45 foot. The Alberta Utilities Board is requiring this in Canada. Why not here in Montana?

Comment 431 The economic benefits of the wind farms are documented in the EIS, but the impact never mentioned is that these projects do not stand alone. There has to be a network of additional power lines to connect to this merchant line. Are these lines going to be allowed to take off any direction cross country to get to MATL, possibly using eminent domain against those who oppose these additional power lines?

Comment 432 MATL is more than willing to use eminent domain to get where it's going. In fact, there are people in this room who have already received such letters telling them this. If you live between a windy ridge and this line, you, too, may share in the unpleasant impacts of power development, with none of the money from the power, the profits are not shared, only the problems.

Comment 433 I for one am not interested in maintaining around these poles for MATL. That responsibility lies solely with MATL, and the EIS states this, but this company is trying to pass

Response 431: See the discussions of Wind Farm Issues and Legal and Regulatory Issues in the Consolidated Responses section.

Response 432: See the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

Response 433: Under DEQ administrative rules, MATL could contract with landowners for reclamation and weed control; however, this is not a requirement and certain landowners might wish to have MATL or its contractors perform weed control.

this duty off to the farmers -- (inaudible) -- such payments, including in the farming impact payments. If MATL thinks that it is profitable to do this for the small amount being offered, let them hire an independent contractor for this duty. I do not want to become an employee of MATL in any capacity.

Comment 434 In closing, I have been a member of a group of landowners who have been meeting with MATL for over two years. We have never said that we didn't want this built. We have chanted the mantra: Field lines, section lines, monopoles; field lines, section lines, monopoles. MATL has not listened. They have always said, "Too much money, too much money, too much money."

I have to wonder how much money is enough for these people. Is the $1 million tax relief that the taxpayers of Montana will have to replace enough? Is the projected revenues of over a billion dollars in the first ten years of operations enough? For the profits from next fine lines of President Johan promises to stockholders enough?

Comment 435 I want to thank the DEQ and Tom Ring for designing the agency alternative, Alternative 4

Response 434 and 435: Comments noted.

and the work they have done, and I want to thank Ellen Russell and her co-workers for being curious and concerned enough to actually ride on a 120 foot sprayer, and experience first hand the difficulty these structures are in conducting agriculture. The same invitation was extended to MATL officials two years ago, but they didn't find interest in it until they saw your example. Thank you.

MR. COMO: Shawn Dolan.

Comment 436 MR. DOLAN: Hi. My name is Shawn Dolan. It would have been Hayden, Idaho. My family owns 400 acres, a little over half a section near the Belgian Hill area. The MATL line has three proposed crossings on our property, one of it guts the center of the property, which is the area of the field, right down the center; Alternative 4 crosses the north part of the field line; and then Alternative 2 cuts diagonally, and then runs along the road.

We're not opposed to the MATL line. However, we feel that they need to make some design changes. And to the previous fellow that spoke, all I could say is, "Amen, hallujah." His sentiments pretty much echo ours as we go through Comment 437

Response 436: In response to this and similar comments, DEQ has learned that the Dolans and Andersons have purchased shares in the Pondera County Canal and Reservoir Company for water to be used to irrigate the affected parcel of land. Thus, the local routing option designed to move the line farther away from two houses is not workable.

DEQ, MATL representatives and engineers, and an independent transmission design engineer under contract to DEQ reevaluated local routing options in the Belgian Hill Road area. A local routing option previously dismissed was revisited when it was learned that an existing side roll irrigation system could be spanned. This would enable the line to be located along the western edge of property owned by the Dolan family, as indicated on Figure 2.6-7 in the Final EIS. This alignment would allow for one or two center pivots to be constructed on this parcel of land. This alignment also remains about 0.5 mile from houses along Belgian Hill Road. However, it would increase the amount of cropland crossed by approximately 0.42 mile and adds 0.35 mile of total line length to the previous Belgian Hill local routing option.

Response 437: Comment noted.

that.

Comment 438 One of the previous speakers talked about, "Get the process over so MATL can negotiate with the land owners." I hope that is indeed the case. What we've experienced was a right-of-way agent showed up on our doorstep, said, "Sign this or I'm taking your property through eminent domain," which kind of poses an interesting question. I know they assert that they have eminent domain rights, but I wonder if a class action suit should be taken to the Supreme Court. I don't return the Canadian company's stealing US citizens' property.

Comment 439 And the 105 foot for the full right-of-way is a standard practice in the utility industry.

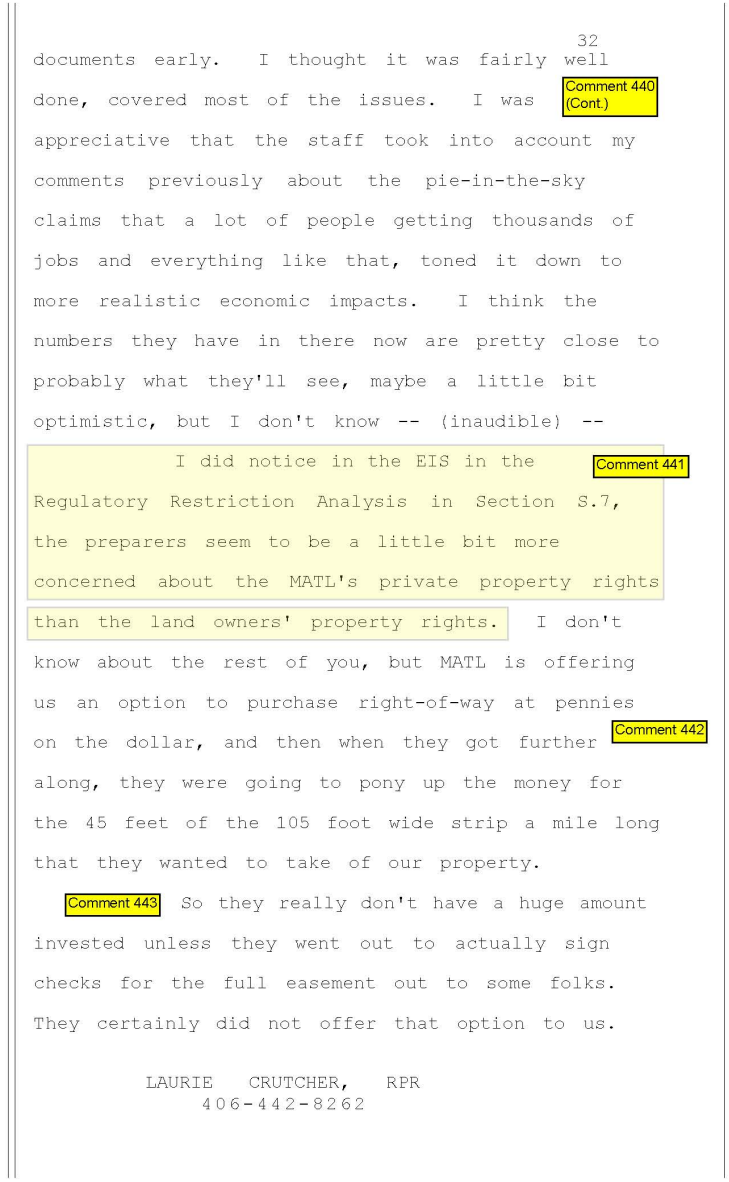
If you want a little background about myself, since some of you may not have been here at the last meeting, I am a registered professional engineer in the state of Montana. I'm chief engineer for an electric cooperative in Idaho, and have been working in the utility industry for over twenty years building power lines, transmission lines, and the like.

Comment 440 To talk about the EIS, I read the

Response 438: Comment noted. See the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

Response 439: MATL has revised its application indicating that it would purchase an easement for a 105-foot-wide right-of-way.

Response 440: Comment noted.



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documents early. I thought it was fairly well done, covered most of the issues. I was appreciative that the staff took into account my comments previously about the pie-in-the-sky claims that a lot of people getting thousands of jobs and everything like that, toned it down to more realistic economic impacts. I think the numbers they have in there now are pretty close to probably what they'll see, maybe a little bit optimistic, but I don't know -- (inaudible) --

I did notice in the EIS in the Regulatory Restriction Analysis in Section S.7, the preparers seem to be a little bit more concerned about the MATL's private property rights than the land owners' property rights. I don't know about the rest of you, but MATL is offering us an option to purchase right-of-way at pennies on the dollar, and then when they got further along, they were going to pony up the money for the 45 feet of the 105 foot wide strip a mile long that they wanted to take of our property.

So they really don't have a huge amount invested unless they went out to actually sign checks for the full easement out to some folks. They certainly did not offer that option to us.

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Comment 440 (Cont.)

Comment 441

Comment 442

Comment 443

Response 441: In addition to determining impacts to the environment, MEPA requires the regulatory restrictions analysis to disclose the economic impact on the applicant of additional requirements imposed by the agency that are not absolutely required by law. The legal requirement to disclose the regulatory impact on the applicant's private property rights applies only to the applicant and not to other people who might be affected by the permitting action. This is a matter of law, not DEQ's choice. See the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

Response 442: See the discussion of Farming Issues in the Consolidated Responses section.

Response 443: Comment noted.

Comment 443 (Cont.)

They just offered us an option at this point. So I would say their private property rights are probably a little shakey at this point, and that the preparers should probably focus on the land owners' rights, as well as MATL's rights, and balance out that perspective. It did seem to be a little one-sided on that.

Comment 444 Regarding the routes through our property on Belgian Hill, we'd certainly be willing to talk to MATL about it if they want to make some changes to the design, but like the fellow said before, it goes section line, field line, don't cross diagonally, make square corners, and we'll deal with some guy wires, but we don't want you crossing diagonally or gutting the field. Our field is an irrigated half-section of land in that particular area, and it's going to be real hard to predict where we'll put our irrigation system in if we put those poles there. We would prefer to have an amount of poles along the section line or along the road line.

Comment 445 If MATL does decide to go with their alternative Belgian Hill option through the center of our field, our family has already decided we are going to file a lawsuit because it will in

Response 444 and 445: The agencies have revised their evaluation of the Belgian Hill local routing option. See the response to comment 436 and Sections 2.6 and 3.16.

effect make our property worthless for anything other than grazing. Right now it is in CRP, but with the recent IRS decision that CRP payments are counted as earned income for self-employment tax, it might come out of CRP sooner than it is scheduled to.

Comment 446 I guess I have general comments on the EIS. I know a number of engineers and professional people have worked on preparing this. As I've gone through it, the only engineering PE stamp I saw was from someone from California. I think that Montana state law requires that public facilities designed in the state have to be sealed by an engineer registered in the state with a Montana PE stamp, so you might check into that and make sure that they have that, or they probably just didn't use it.

Comment 447 And then finally, I'd like to further address the minimum line clearance issue. The EIS lists the minimum line to ground clearance as 21.2 feet. In Volume 2, the response to my previous comments, I believe DEQ talked to HDR Engineers in Billings, Montana, Mr. William Bowers (phonetic) who is a very talented and gifted transmission line designer, and he ran the calculations, and

Response 446: An EIS is not an engineering design document requiring approval by a professional engineer. MATL and the agencies are currently in a planning and permitting process. If agency approval is granted, MATL would proceed with final design before constructing the line. If the project is approved, one of the conditions of approval could be a requirement that final design plans be reviewed and approved by an engineer registered in Montana.

Response 447: See the discussion of Safety Issues in the Consolidated Responses section.

came up with a little bit higher number than I have, because he assumed 4,500 feet in elevation, and I assumed 3,300 feet. That was the difference, the elevation error.

Comment 448 MATL contacted Maher (phonetic) and Associates out of Missoula, Montana. As luck would have it, I've worked with both of those people, and have worked with the same company. I had nice visit with Dave, and he said, "I can't share the calculations." He was asked if the bare minimum calculations are for a 230 line.

Comment 449 And my main concern that I have on the line to ground clearance is that the 21 foot level, 21.2, 21.8, depending on which page you pick the number off, that's too low for a 230 line to cross agricultural fields. The National Electric Safety Code has provisions specifically that states that you anticipate for height equipment operating, such as combines, sprinklers, etc., you should designed the line to accommodate the height of these vehicles, and it's reasonable to expect them to operate in that area.

I've got copies of that portion of the code. It's Footnote 26, Table 232-1; and also the National Electric Safety Code Handbook, Edition 6,

Response 448: Thank you for your research.

Response 449: See the discussion of Safety Issues in the Consolidated Responses section.

and it talks specifically about that.

Comment 450 One of the things that I found in reading MATL's comments, they said, "Well, we had three different engineers look at it. They all came up with different numbers. We're going to use our minimum, bare bones, because we don't know what type of vehicle is going to go across that."

Comment 451 If you read through the code, the term that they're trying to rely on, it says, "Vehicles under 14 feet in height." I called John Deere and said, "Send me an email with a diagram showing the height of your equipment, your combines," so they sent me the 9000 series combine envelope drawings, and they put some engines on it, plus the original printout that I got from John Deere, and down-the-road height of their combine is fourteen feet six inches in operation with no modifications to the combine, with the hopper out, sixteen feet seven inches, above the fourteen foot mark.

Comment 452 Now, there's one modification that most farmers make to their combine, and I've dealt with a lot of farmers through my transmission line construction and acquisition. I've -- (inaudible) -- their farmers. They usually add a two-way radio to their combine, or a CB. Right? Where do

Response 450 to 452: See the discussion of Safety Issues in the Consolidated Responses section.

they put the antenna? On the cab. So if you look at that 9000 Series combine whose cab height is twelve feet four inches, when you add a standard 180 inch CB with antenna to the top of the cab, the height of that vehicle when it's operating in the field is 21 feet four inches. Guess what? That's right at the conductor level.

What's going to happen to you if you run into a 230 KV line with your CB antenna on top of your combine? You're going to be dead.

Comment 453 Now, every three years I take an update on the National Electric Safety Code from the fellow that used to be the Chairman of the NESC code committee, that was Mr. Allen -- (inaudible) -- and this last fall, I took my update, and I sat with Allen after the class, and had a beer, and kind of explained why, and his response to me was, "The first farmer that hits it, the plaintiff's attorney will have no problem getting a multi-million dollar lawsuit, and they will own that transmission line company, because there is no defense for that."

Comment 454 His exact words that he's fond of saying is, "That's socially unacceptable behavior to put a 230 KV line at that level above worked

Response 453 and 454: Comments noted.

agricultural ground." Above grazing ground where you don't expect a combine, it's fine to go down that low; but above agriculture ground, there's stuff that's perceived -- (inaudible) -- area is criminal.

Comment 455 Now, I did some quick calculations. MATL used Rule 232(d) out of the National Electric Safety Code to calculate their height, which is a reduced clearance based on switching surge factors of the transmission line. In that rule, there is an exception, or kind of a stop gap, and it says, "Minimum height shall be based on Rule 232(c) for at least 98 KV." It means you can't go below that calculated level.

Which points you back to Rule 232(c), and you go look at that, Column 4, and there's a Footnote 26. If you have the latest edition, it's in there. If you have an earlier edition, there is an errata sheet saying that Footnote should be Footnote 26, says if it's anticipated over height equipment, you have to add the difference of the height between that equipment and the 14 feet that's in the code.

And if you have a combine that's running down the field with a CB antenna that's at 21 foot

Response 455: Comment noted. Under DEQ regulations, MATL must comply with the National Electrical Safety Code.

four inches, subtract that 14 feet, add that difference to the covered value, that line clearance ends up closer to 29 feet you have to meet, substantially higher than MATL is quoting. I'll turn in my notes for you to look through.

MR. COMO: Gary Iverson, please.

Comment 456 MR. IVERSON: Hi. I'm Gary Iverson. I'm the Mayor of the town of Sunburst, and I'm here representing the City Council, the businesses of Sunburst, the school system in Sunburst, and all of the citizens of Sunburst, and their support for the line and the potential industry that it can bring into Montana.

We do understand those concerns with where the line goes, and we understand the people who live around it and work under it, and the line has to take care of those problems. But this opportunity to have this line and to have the wind farms and the industry that go along with this line are very incremental to this area, and keep our populations, our schools, and keep some of our kids home.

Comment 457 We had an interesting comment in Cut Bank last night that Roy brought up, and he asked the people how many people in the crowd have

Response 456 and 457: Comments noted.

children who had to go out of state to find a job, and I'll to do that for Roy tonight, and raise your hands. How many people have kids out of state? They have to go out of state to find a job because there is no jobs in Montana. We don't have a lot of opportunities for a lot of different industries, that I see wind power as being one that's really incremental to us.

And we just wanted to pass on our support for this project. We want the project done right, and we want to see the wind farms come in, and everything else. Thank you.

MR. COMO: Curt Reis.

(No response)

MR. COMO: Melissa McRae.

Comment 458 MS. McRAE: Hello. For the record, my name is Melissa McRae, and I'm a fourth generation farmer out near Dutton, and I'm actually for the MATL project. But I'm also graduating as a Bobcat this spring with a biology degree, and this is an environmental impact hearing, and we haven't talked about that, so I would like to talk about environmental effects.

You must understand that farming around poles is inconvenient and financially burdensome,

Response 458: The study of the costs of farming around structures that is included in the EIS includes consideration of the potential for reduced crop yields due to inadvertent over-application of herbicides and fertilizers. Effects of over-application of chemicals on groundwater would depend on the nature of the chemicals used. Selection of pesticide chemicals that degrade rapidly would minimize the potential for pesticide contamination of groundwater. Excess fertilizer application could be a problem in high groundwater areas. Fertilizer nutrients and long-lived pesticides have the potential to infiltrate to the underlying groundwater, but on dryland farms the potential for adverse effects would be low because little moisture infiltrates to the water table. With or without a transmission line, farmers should monitor their fertilizer and pesticide use to avoid overloading. Also see the discussion of Farming Issues in the Consolidated Responses section.

but I would like to speak about this in detail. Much of the cost is incurred by the extra chemical and fertilizer used. 134 foot sprayers are not designed to turn sharply, and when you go around the pole, you lay down extra spray. It's inevitable.

This is a concern for the farmer because extra chemical can burn the crop, and it can cause production loss. It should also be a concern to everyone because extra chemical has potential to be very dangerous to our -- (inaudible) -- If you look toward the future, in fifty years the cumulative effect of this chemical could be even worse, and in areas like Valier, where the ground water is very high, you can expect that people may even start to feel these effects.

Comment 459 The best solution would be to keep the poles out of the fields, but the next best solution would be to minimize the number of poles in the fields, keep them to the edges whenever possible, and make sure they are monopoles.

Comment 460 We also would appreciate financial incentive to help us make sure that we farm the poles carefully, that we limit the damage we do. We are given incentives by the government to help

Response 459: See the response to comment 85 regarding pole placement.

Response 460: MATL's revised compensation package is described in Section 2.3.

pay for the extra costs of GPS and other systems that make precision spraying possible, lessening the amount of chemicals we use there. Shouldn't we also receive help for the burden of farming around poles?

Comment 461 I know that everyone is very excited about the economic -- (inaudible) -- these poles may bring, and I hope along with you that more business ventures like this will help keep towns together, and schools like the one I graduated from open. But we need to keep in mind that the ones said to profit the most from this transmission line is MATL, and they need to negotiate with landowners to make the burden for their for-profit merchant line more bearable for us.

I ask you all to please visit the company's website at Tonbridgepower.com to see for yourselves. Thank you.

MR. COMO: Cheryl Curry.

Comment 462 MS. CURRY: I'm again standing here in support of the construction of the proposed MATL line.

At the Great Falls hearing, it was mentioned that the proposed Alternative No. 4

Response 461: Comment noted.

Response 462: Alternative 4 lies within the project study area. See the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

would be a preferred alternative. I'm standing to oppose this selection. The studies have been completed on the MATL proposal. Alternative 4 moves the lines significantly away from the already studied area, and also makes less sense. The Alternative No. 4 places the line east of Conrad, a greater distance from the proposed wind development, and farther from the already existing substations. Comment 463

In consideration of future environmental impacts, this is not a good choice. Lines from potential wind development areas and some substations that may eventually connect would be longer, and more obstacles would be encountered.

Comment 464 I support the project, and urge the DEQ to move forward quickly on this project in order that this area may see the benefits in our economy, rather than see another project go away.

Comment 465 I'm also carrying a letter signed by 25 people that says, "In an effort to show our support for the MATL transmission line and cut down on the number of responses you must make to our comments, we present this letter as a group of individuals. We support the line and believe that it is good for the area. The economic benefits of

Response 463: Comment noted. There is no evidence on the record that a wind farm west of Conrad would interconnect to the MATL line. Other possible interconnections should a wind farm be proposed in the area include the NorthWestern Energy 115-kV line and the Western Area Power Administration 230-kV line. Both have substations just south of Conrad. Figure 4.1-2 sets out the locations of potential wind farms, based on field observations of anemometers. One anemometer location was found west of Conrad and west of Alternative 2.

Response 464 and 465: Comments noted.

the line and the potential of wind development projects in the future will contribute in a positive way for our rural economy. We believe the environmental concerns are minor, and we welcome the enhanced tax base and the jobs that will be created. We ask you to move the process forward in an expeditious manner with thoughts of fairness to the affected landowners."

And I didn't identify myself. Cheryl Curry.

Comment 466 For those of you that weren't at the Great Falls hearing, and because I also am a friend of farmers, I want to make sure that you understand that I am also standing in understanding your concerns, and urging consideration of your concerns.

MR. COMO: Is it Mr. McFarland?

MR. McFARLAND: Forgive me if I turn my back to you. I came to talk to these guys, not you.

Comment 467 My name is John McFarland. I'm a small business owner from Conrad. I would just like to say with respect to all of our friends in agriculture, that we would like to see the MATL line go through. We're in favor of it, but doing

Response 466: Comment noted.

Response 467: Any approved alternative alignment would generally be 500-feet wide and would allow for adjustments to better align with property lines, field edges, and strip-cropping boundaries. Also see the response to comment 85.

so following property lines, section lines, township lines, etc.

Comment 468 We also respect the fact that the agricultural community is the greatest contributor to wealth in our area, but we would also like to see the additional impact created -- (inaudible) -- by the MATL line. Thank you.

MR. COMO: Thank you. Of all of the people that have just signed our list just indicated that they wanted copies of the document. We've sort of run out of the names of people who said that they wanted to say something. So I'm sure everybody is sitting there -- we have plenty more names. Great. Well, some.

FEMALE SPEAKER: Wendy Judisch.

Comment 469 MS. JUDISCH: Thank you, Mr. Como. My name is Wendy Judisch. I am a resident of the city of Conrad, and a member of the Conrad City Council.

I welcome the opportunity for our area to use our natural resources. One of these natural resources is our wind, a great source of renewable energy. A transmission line through our area will not only help encourage the development of wind energy, but also help to spread the tax

Response 468 and 469: Comments noted.

burden throughout our area. The economic boost and its inevitable spin-off will help benefit our area schools, our city, and our county.

Comment 470 I encourage you to help the proposed MATL line become a reality as efficiently and expeditiously as possible. The economic pros far outweigh any environmental cons. Thank you.

MR. COMO: Thank you. We seem to have run out of names again. No. She's waving me off. Sir.

MR. STROM: So I want to thank you for this opportunity to appear before you. My name is Eric Strom. I live in Conrad. I was born and raised in Pondera County. I've farmed for 43 years, and just retired from that farming. And you can take the farmer off the farm, but you can't take the farmer out of the farmer.

Comment 471 So what I do, once I'm retired, I'm not retired. I run sprayers, 36 foot header combines. My biggest problem is going down the road, and hitting mail boxes.

But here is my comment. And I'm in support of the MATL line. I think it's a great idea. I know there is some problems that need to be resolved. But one thing I think is positive is

Response 470 and 471: Comment noted.

that if we had a wind farm out this side of town would keep my plastic garbage cans from rolling down the street, because I know it reduces the velocity of wind. But thank you.

MR. COMO: We seem to have run out of names again. Good.

Comment 472 MR. DULLEM: Thank you, Tom and Tony. I will face you. I marked out -- First let me say that my name is John Dullem, I live in Valier, and I'm presently the Superintendent of Schools. I'm not sure how long that will last. -- (inaudible) -- items as they were stated, and I'd like to thank you, Tom.

There is one issue that I think that has not been mentioned, and I did talk to Tom on the phone -- and I just met Tony -- asked him to send me the document. It's over 600 pages. I can't remember if it was Page 491 or Page 2 that I fell asleep.

This is my second time through this. We moved from Oregon, and had the opportunity to represent a county that was very similar to this situation, to Pondera County, and all of the good impacts that come with wind farms have been stated, and there is only one that I would add

Response 472: Comment noted.

that seems to have been missed, and this is all mixed up . I don't want to take your time.

Comment 473 And I did not see it in the executive summary either, Tom. And that is the value that this project has to our nation. Our utilities face some very complex decisions, one requiring trying to acquire power. Utilities are looking for a number of different sources and strategies. We're going to by 2010 be facing a serious power shortage, and the gross load that is coming will only intensify that shortage.

Comment 474 So I say to you: Besides the good that will come to my county, Pondera County, besides the tax base increase that will come to my state, it's my nation that will benefit from this. This program helps satisfy our need for power, and the plan meets the environmental tests. Of course, we have to realize those issues that impact our friends and neighbors. The plan moves this region and this nation forward.

Comment 475 So I say to you three gentlemen: Implement this plan and implement it promptly. Thank you very much for the opportunity.

MR. COMO: Thank you.

MR. REIS: I'm Ronald Reis, and I'm from

Response 473 to 475: See Sections 3.13 and 3.17 for benefits from the MATL line, including some benefits that would extend beyond Montana's borders.

Conrad, and I'm a small business owner in town. Comment 476
And we've heard about all of the positive things that this project can bring to our community, and communities which this line travels through. I am in support of this project, providing that it passes the two "F" word rules, and them words are, "farmer friendly." If this project is not farmer friendly, and meets the needs and the operations of the farmers that this projects goes through, then MATL has more work to do. Thank you.

Comment 477 MR. COMO: Anybody else?

We've got one in the back and then --

MR. FETGER (phonetic): My name is Patrick Fetger, and I was born and raised in this country. And I can remember no electricity, no running water, no phones, not many paved roads. I don't want that again.

Comment 478 I remember when one -- (inaudible) -- REA came in, and no one was against that. Many people who had no electricity prior to that also got phones, or had no phones but no electricity. We have had boom and bust building, and drought, and flood, since the advent of power on demand. We have had creature comforts. We as an area affected by this transmission line may have a

Response 476 to 478: Comments noted.

future of steady growth. With power available, we are in a good area. We are on the transportation corridor with I-15, we would be on power corridor. We would be on -- With a water project in the works, the area is going to be looked at by other entities.

Comment 479 The inconvenience of the power poles affects everyone involved, the farming, and whoever has to move or build. I myself would not want a pole or structure on me property. That would be inconvenient for me, but I would not say no if it made sense.

Comment 480 I would hope that the changes made by the power line would help my children, grandchildren, and others stay in the area, so that they might have the opportunity to live and work in Montana as I have. Thank you.

MR. COMO: Thank you, sir.

Comment 481 UNKNOWN SPEAKER: Good to see you guys again tonight. I think we have got a bigger crowd than we had last night in Cut Bank. So far I as I know, -- {inaudible} -- Pondera County, both Pondera and Teton Counties. And I am in favor of this, but I think MATL has to work with the farmers, because it's no fun farming around oil

Response 479 to 481: Comments noted.

wells, power poles. I have worked -- (inaudible) -- where I had -- (inaudible) -- poles, some monopoles in fields, and stuff, and I had to drive 100 foot sprayer again. So 134 foot sprayer -- (inaudible) -- to work around these -- spray around these poles.

The only comment that I've got to say, and that's to you, very few, that you alone with our combine any more proceedings. And probably your average -- (inaudible) -- would be between 24 and 30 inches -- (inaudible) -- but that's the only thing I can disagree with. But I am in favor, and I think that -- (inaudible) -- MATL can do a better job with the landowners. I think they've got to get up and do a better job of working with the landowners. Thank you.

Comment 482 MALE SPEAKER: I don't know you guys. I do know -- (inaudible) -- My name is George Tsonga (phonetic), and I'm the manager of the local -- (inaudible) -- theater here in town. I'm one of those people from the state of Montana that we're losing each and every day. We've got lots and lots of assets in this beautiful state of Montana. We have more resources than any other state in the nation. We're No. 6 in production. But we're

Response 482: Comment noted.

losing our young people.

I was gone for 35 years. I came back only because I have elderly relatives here, and I came back to care for them. But in that process, I got reacquainted again with why I was here in the first place. I love this state. I asked for and received the brand that my grandfather had when he homesteaded in this country. I still own that, and I'll pass it on to my children. I want them to have a piece of Montana.

But if we do not start to utilize these resources to create opportunities for our young people to come back and live in this state, and become active and vital members, we're losing one of the best raw resources that we have.

Comment 483 I'm not a farmer. I did, however, -- {inaudible} -- been able to catch a fence corner or two, because I was hired by local farmers when you guys could still go out and hire young men that wanted to work. We're getting rid of these people, and we need them around here. I did learn from those experiences, though. If you rebuild enough the fence corners, you can start missing them pretty quick.

So I only want to say that anytime that

Response 483: Comment noted.

Comment 484

we can create opportunities for our young people to come back into this wonderful state -- I not only love the mountains, and the trees, and the animals that are there, but I'm a prairie boy. I love fields, I love grass, I love the Big Sky Country. I've lived in about 13 other states in the 35 years I was gone from here, and there is nothing like the Big Sky of Montana.

Comment 485 MR. BRANNING (phonetic): My name is Rich Branning, and I think I know 90 percent of the people in here. I've got offices -- that's the reason why -- I have offices in Cut Bank, Conrad, Valier, and Browning. I'm also a small farmer, for those of you who didn't know that little tidbit. So I'm kind of nervous about it. I don't farm the land, but listening to the gentlemen over here, I think they made some valid points, and I hope that MATL and the farmers can get together and work out those points.

Comment 486 But on another aspect, I'm also a business person, and I see the importance of this project, and I think all of the people that have spoken have spoke towards the progress of this project, other than there needs to be some more discussions.

Responses 484 to 486: Comments noted.

The gentleman from Idaho, being a professional, very good. I appreciate that. But we're in Montana here, and I hope that things can be worked out in the long run.

Comment 487 I also have four children, and I really don't want to ship my commodities out. So I am very much in support of this, and I know a lot of other people that are in this room, too. So thank you.

Comment 488 FEMALE SPEAKER: My name is Jackie -- (inaudible) -- and I'm from Sunburst, Montana. I don't farm, and I understand that there is problems with farming. My husband is in the oil fields, and you know, things are inconvenient. If we go across someone's field, we compensate them for going across their field. When a line is laid -- my husband is on the board for more telephones -- when there is line laid, they're compensated.

Comment 489 I hear all about the taxes you're paying, and that's -- you know, we're all paying taxes, and golly, it's a lot. It's a lot today, especially if you have kids and everything else. The tennis shoes alone will break you by the time they're out of high school. But they're compensated.

Response 487 to 489: Comments noted.

There is a lot of breaks that you get from the government that we don't get. And I'm very resentful to you for saying, "We will sue." Sue? You're from Idaho. We're from Montana. Okay. Sue -- (inaudible) -- No. I'm upset with you. These people are trying to work things out, and we're running up -- sue. Yes, you said you would.

Comment 490 But what I'm saying is: This is a business that's coming in here. They're getting money. Every one of you that went into business or are farming, you're there to make money. And if you do really well, you can hire someone. That's great. They can draw from that. That's what business is. You go into business to make money for yourself, and these people are, but they do have a responsibility. I'd love to see them buy the land from you to run that thing through, so you wouldn't have to farm it, so you wouldn't have to go around it. That would be great. They need to work with the farmer.

This is your land. This is your heart. And they have a responsibility to work with you, but you also have a responsibility to work with them, so that all of us can benefit. And that's

Response 490: The agencies recognize the controversy over this project and the disagreement among people who might be affected. See Farming Issues in the Consolidated Responses section.

what I think we need to think about, not just ourselves. We all can benefit from this. But let's not -- (inaudible) -- and close our eyes, and say, "We won't talk about it unless it's 100 percent our way." We all have to compromise.

Golly. How many people are married here? How many people have to compromise? How many people have to compromise?

Things are really, really, really important to us, like our land, like our jobs, like our families. We all have to compromise. And I guess what I'm trying to say is this: Please, please. Sit down at the table; don't threaten each other; compromise; work this out so that everybody can benefit. Thank you.

MR. ANDERSON: I'm Ray Anderson, and I take offense to that. Shawn Dolan here is a very bright man, well educated, and he knows what he's talking about. But I'll tell you what. It's MALT plan that they compensated to the people to the north of us, and they compensated to the people to the south of us, and they want to go directly up the middle of our full half-section, right up the middle of it.

How many of you people would like to

have a power line go right up the middle of your place? It's irrigated property, and it would eliminate the chance of a center pivot system, it eliminates the possibility of a side roll, and it would be value -- (inaudible) --

I think that when they make compensations to the north, they make compensations to the south -- and Randy Rummell, who was the land man that talked to us, I said, "My, gosh, Randy. You're beating us to death." Well, he said, "Yes, kind of." And that's just terrible. And that's why Shawn said that we're not going to stand still for that. We absolutely aren't.

FEMALE SPEAKER: But don't walk away either.

MR. ANDERSON: We're not. Believe me, I'm as much for progress for the state of Montana as anybody, I absolutely am, except that it absolutely has to be done right. But lots of times on school boards, and soil conservation districts, and stuff, and one of the things -- The last thing I said when I left the school board, I said, "You know, put off the project as long as you can; but when you do, do it as possibly as

best as you can. State of the art." That's what -- (inaudible) -- They weren't using state of art. I mean do it first class when you do something, and don't cut any corners.

And I said this to MATL before at about four of these meetings that we have had here. They said, well, they can't afford to go to the single poles because of the fact that it was more expensive, but their capacity has been sold out. Now, that's a no-brainer, because if their capacity has been sold out, and yet they can't do it right for the farmers, they sold out too cheap, didn't they? They missing -- (inaudible) -- missing in the process.

MALE SPEAKER: -- (inaudible) -- Is he from Idaho, and Shawn Dolan, and he's from Idaho. And I was born and raised in Montana, educated in Montana, and left because --

FEMALE SPEAKER: His kids aren't going to school here, are they?

MALE SPEAKER: No, they're not.

FEMALE SPEAKER: And this will help our kids.

MALE SPEAKER: I said we're not opposed to the line.

ruin the value of the property, we're going to look at a lawsuit. If they work the edges, section lines, fence lines, we can work with that. That's what I said.

FEMALE SPEAKER: -- (inaudible) --

MALE SPEAKER: Yes, but sometimes you have to use legal process, and that's part of the legal process.

MALE SPEAKER: -- (inaudible)--

Comment 491 FEMALE SPEAKER: I'm -- (inaudible) -- and I represent House District 28. It's an honor to be here and support this project for economic reasons for this area, for adding a piece of the puzzle for clean energy.

But what I really would like to do is compliment all of you. It's been a long, hard process. You've put many hours of work and thought into this project. This is international. It can happen. I would urge MATL to make things right with the people that work the land, and let's keep working together. Let's make this a pattern for our future. Thank you.

Comment 492 MR. JONES (phonetic): My name is Lew Jones, and tonight I want to talk to you -- I've talked with the state rep a number of times today.

Response 491: Comments noted.

Response 492: Comment noted.

We'll talk about the farm boy. I guess I'll start with: I believe they can be -- (inaudible) -- work, and LeeAnne Kavanaugh, and so I won't take credit for it. She said there can be win-win here. There can be a way to settle these issues, and I kind of like that word, so I've kind of stolen it.

As a farmer, I'd like to share some names with you, and there is the Knowles, the Lewises, the Smiths, the Roushers, the Thomases, those are all places that the Jones Ranch now farms. What's happening is we are fairly large operators even in today's world, and unfortunately each time one of those families leaves, our school system shrinks, because there is huge equipment now. Everything is big now. What's happened with ag, it takes less and less numbers. With less and less numbers to control more and more land, Class B schools becomes Class C's, Class C schools go away.

You know, Conrad could become Valier, Valier could become Brady, and Brady could become Gallop City. Do you guys remember Gallop City? It's on the Jones Ranch as well. I don't advocate -- we all know the oilfields are out there. Jerry

Comment 493

Christiaens -- I see him standing in the back of the room. I can tell you about power poles, too. I've spun a swather around, and unhooked a guy wire on a stupid corner pole on Sunday, and it cost me $5,000, because Jerry showed up on a Sunday, and -- (inaudible) -- Next time I'm going to leave the pole stay there until Monday. But they are a pain in the ass. There is no question about it.

Comment 494 As a business man in this town, I certainly do not advocate that the farmers and ranchers not be compensated. They remain here. They will be always be a significant part of the tax paying economy. Hopefully we'll be here. I have several sons. I'm hoping they can come home here. That's why I work on this.

Comment 495 We have to broaden our economic base. To do so, we have to achieve a win-win. We have to work this thing out. When the fighting gets nasty, and then it doesn't work out, then we lose. This is possible. There are no enemies here. We appreciate you shopping at Front Line -- (inaudible) -- I kind of like that. I do. And therefore I hope you continue to farm. That's a huge part of what we do.

Response 493 to 495: Comments noted.

Comment 496 But I tell you what, we took a risk having -- (inaudible) -- to stay here as well, because it costs money and it was a risk. You know, a lot of folks who said, money in the bank. You've got to roll the dice and try. There are folks here trying to make this work. -- (inaudible) -- wants to leave, nobody wants to leave. The farmers wants to make it work. There is only going to be failure when the fighting starts. There can be a win-win here. That's what we've got to achieve. To do that, we've got to keep working on it.

Comment 497 MATL has changed their behavior since the first time. They did have a group of land agents that were not doing justice. There is no doubt about it. We talked to Johan personally about that. His phone number is not posted. He is trying to work it and I believe we're discussing the first per pole payments in the history of easements.

Comment 498 Now, maybe the per pole payments aren't sufficient. Maybe that needs to be talked about. Maybe there are some adjustments that need to be made. Let's get them done. This is three years. What would happen if the grid -- (inaudible) --

Response 496: Comment noted.

Responses 497 and 498: See the description of MATL's compensation package in Sections 2.3 and 3.13.2. DEQ is not aware of any other Montana utilities or electric cooperatives that are making annual per pole payments to farmers. Also see Farming Issues in the Consolidated Responses section.

and we will achieve what Montana can successfully do to itself a number of times. If we delay this long enough, it will go away. Then two years from now, we'll say, "How come we didn't get that? Why didn't we get it done?"

Comment 499 You know, I look out on this crowd, and there's a number of you that I pester mercilessly to show up at these meetings, because you've got to. If you don't become informed and participate, it goes away. And we need that.

You know, I know why folks don't talk. I heard it here tonight from -- (inaudible) -- We don't talk because we're afraid. We don't want to lose your business. But by the same token, if we don't talk, we lose everything. We have to find a way to work this out.

You know, I want the Jones Ranch to survive. I want the sheep on it to survive. I want this to be a Class B school. Let's find a way to win. Let's quit fighting and get it done.

Comment 500 MR. BLACK: For the record, my name is Jerry Black. I represent Senate District 14. That includes Glacier, Toole, Pondera, Liberty, and Choteau Counties. I want to thank all of the people who got up and spoke. I think this is what

Response 499: Comment noted.

Response 500: Comment noted.

we need to hear, this is what MATL needs to hear.

To say that the vast majority of the people in my district support MATL is really an under statement. They would like to see this project go forward. They realize there are great concerns by many landowners, and that these issues have to be resolved. I think it was very unfortunate that MATL got off to such a rough start due to the agents that represented them initially, and they realize that, too. They got started on the wrong foot. They seem to me to be very eager to now meet with farmers and landowners, and try to resolve those issues.

Comment 501 I think Johan said today that he was going out this afternoon to meet with several landowners in regards to their issues, and they want to work together with northern Montana and with the landowners to make this project work, and hopefully they'll be able to get that done.

I think, you know, we've got to realize that not everybody is going to be completely satisfied, landowners, and neither will MATL. They're going to have to make concessions that they really didn't want to do to or live with, and I think some landowners might be in that same

Response 501: Comments noted.

position. It's kind of a give and take situation.

Comment 502 But this is extremely important. I think this is the largest economic development opportunity that this area has had since oil was discovered in northern Montana, and since all of the railroads were built across Montana, and to Great Falls, and interconnecting. This is an opportunity that we can't afford to miss.

Comment 503 We've talked about what it would do for the schools, the declining enrollments, the tax base. These are all things that we need to do, and work with, and improve upon, and MATL is certainly one of the answers to that.

Comment 504 As far as the need for MATL, it's predicted that the United States is going to have an energy crisis in the next few years, and already roughly sixty coal fired generation plants across the US have been cancelled due to environmental concerns. It's predicted that the price of energy is going to go sky high, and that will affect every one of us.

Wind energy is a clean and affordable energy that we must develop, and we have the best wind energy, one of the best on the North American continent. We have to develop that resource and

Response 502: Comment noted.

Response 503: See Socioeconomic Issues in the Consolidated Responses section.

Response 504: Comments noted.

make it work.

Comment 505 And yes, there will be some sacrifices. Some landowners might be taking a hit for the team, as Johan said earlier today. But the direction this is going right now I think is in the right direction. I think MATL is listening very seriously to your concerns, they want to address those, and want to work with you, and they want to make this whole project work.

Comment 506 You know, somebody said at one of the other hearings that I was at, you know, the wind is blowing as strong outside -- or inside as it is outside, and I think he was referring to I and Lew at the time.

By the way if you do have any problems, I refer them all over to Representative Lew Jones. He said he would take those calls.

So it's my hope and wish that we work this out. If we can move forward -- and I think we can, if we're really willing to work together. It is an important project that must be done. Thank you.

MR. AIKEN: I'll speak up, get along with MATL quite well, which listening here I have a little advantage --

Response 505 and 506: Comments noted.

MR. COMO: Could you give your name just for the record.

MR. AIKEN: Russ Aiken, C&S Farms.

Comment 507 My youngest grand daughter was there when they showed up to talk to us, and I said, "Well, whatever we do to get along with this, when I'm gone, I don't want her standing on that hill saying, 'What in the hell was Grandpa thinking with this thing?'" So I'm going to assume maybe that's -- (inaudible) -- We met with MATL. The people were nice to work with, and they were considerate to us, and well mannered. They moved the line to the east side of us, and that line could be put on grass land. The Alternative 2 aligned and Alignment 4 were the same on us on Township 30 North, four west, Section 24, 13 and 14.

Comment 508 But in your book of S-4-6, local routing options, Page 5-20, Chapter 3, Page 3-217, 316, 317 -- (inaudible) -- So locating route option would increase the land potential for soil erosion greatly. MATL and I looked at this option when they laid out the plan to cross us. There are several drawbacks to this option, and going down the hill, erosion was the first, weed control from

Response 507: Comment noted.

Response 508: Since publication of the Draft EIS, MATL representatives and their engineers, a DEQ representative, and an independent transmission engineer under contract to DEQ reviewed the Bullhead Coulee South Local Routing Option. The steepest slopes crossed could be spanned by the transmission line and access for construction and maintenance equipment could avoid the steepest slopes for this local routing option. On the east side of this local routing option, access would be on relatively flat ground at the top of the hill where a structure would be located. Separate access to the base of the hill would be from the old county road. The line could be strung by hand or helicopter minimizing impacts to the steep slope.

The hill on the west end of the local routing option is much gentler but again access could be restricted in the span where the steepest terrain is crossed.

MATL would be required to implement a noxious weed control plan to reduce the spread of weeds regardless of the alternative alignment selected. Likewise, MATL would be required to implement Best Management Practices to control erosion caused by construction and maintenance activities regardless of the alignment selected.'

See the discussion of Vegetation, Wetland and Weed Issues in the Consolidated Responses section.

construction, and servicing the line, plus extra expense of $100,000 to build it.

Comment 509 It is also close to an artifact that was left with the flooding in Canada. They asked if we would try not to have this line close to it. If we go down this hill and back up again, there is some 200 foot drop going down and up, and it would involve three more landowners, the MATL people and us as landowners, GPS line on top of the ridge to a gradual descent for a minimum of impact on the land. We will have one inch poles -- we can either farm around it, or include it into the grass next to it. We would like to have this line as it was proposed to us, and the Bull Head Hills curving south, routing off and dismissed.

MR. UNDERDAL: My name is Allan Underdal. I'm a Commissioner with Toole County in the Shelby area. And of course, my two colleagues are here, too. And when I was waiting for them to get up here, usually they're so talkative in the office, and I was wondering why they didn't get up first.

Anyway, we would like to state that in Toole County, we are very much supportive of this

Response 509: The cultural resource would be avoided by both MATL's proposed alignment and the Bullhead Coulee South local routing option. See the response to comment 74.

project, and we think that this will be very positive, not only for Toole County, but for Glacier and Pondera County as well, and others.

Comment 510 I was very fortunate today to be standing, just kind of doing some things out in the area where the first wind farm will go in just a few weeks. That isn't dependent upon the MATL line. But we don't want to be the only one that has a wind farm. We see so much potential in this area. There won't be a second wind farm in this area, I don't believe, without MATL. You have to have some way of getting that power to market.

Comment 511 And certainly this is very, very worthwhile. As Jerry said, I think power is at a premium, and certainly it's not going to get any better as time goes on. So we would continue to say that we support this.

Comment 512 I guess one of the things I was thinking about was that when you get up in the morning, usually you get the wind blowing outside, and you don't think something positive; but maybe if you have a wind generator out there, you'll think differently about that, if we could make something negative into a positive, and that's what we'd like to do. Thank you.

LAURIE CRUTCHER, RPR
406-442-8262

Response 510 to 512: Comments noted.

March 10, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

I'm a producer in Glacier County. The MATL line will be going through my property. I want to be on record that I'm in support of the MATL line and wind generation in Glacier County.

This is an opportunity for me personally to help the economy of Glacier County and for myself. I have no mineral rights to the land that I bought in 1987. This will give me the chance to have an additional income source for my farm. Glacier County has been suffering through a drought. Comment 513

Change is hard to deal with but this is an opportunity for our area to bring in a new business that is clean and friendly for the environment. I'm willing to deal with some inconvenience to do my part to help bring new business to Glacier County. Comment 514

The MATL line and wind generation will increase the tax base for the County. This will help our tax bills, provide more for our schools, and help build our infrastructure. Comment 515

I support the MATL line.

Thank you.

Mike Koepke

429

Response 513 to 515: Comments noted.

March 11, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 516 The MATL line is scheduled to pass through Koepke Farms property. Koepke Farms is in support of the MATL line.

Comment 517 Tonbridge has been accommodating and has listened to the concerns that we may have had.

Comment 518 We believe that we need to be supportive of new industries that want to come to our counties. The increase in tax base will benefit all taxpayers. This is a rare opportunity for this area to have a clean industry come to our counties. We need to be supportive and take advantage of this opportunity.

Comment 519 Koepke Farms wants to be on record in support for the MATL line.

Thank you.

Koepke Farms by Michael J. Koepke

Koepke Farms
by Michael J. Koepke, President

L30

Responses 516 to 519: Comments noted.

March 11, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 520

I'm chairman for the Cut Bank Public Schools. I believe that the building of the MATL transmissions line will benefit the children of School District 15, the taxpayers, businesses in the area, and help the overall economy of Glacier County.

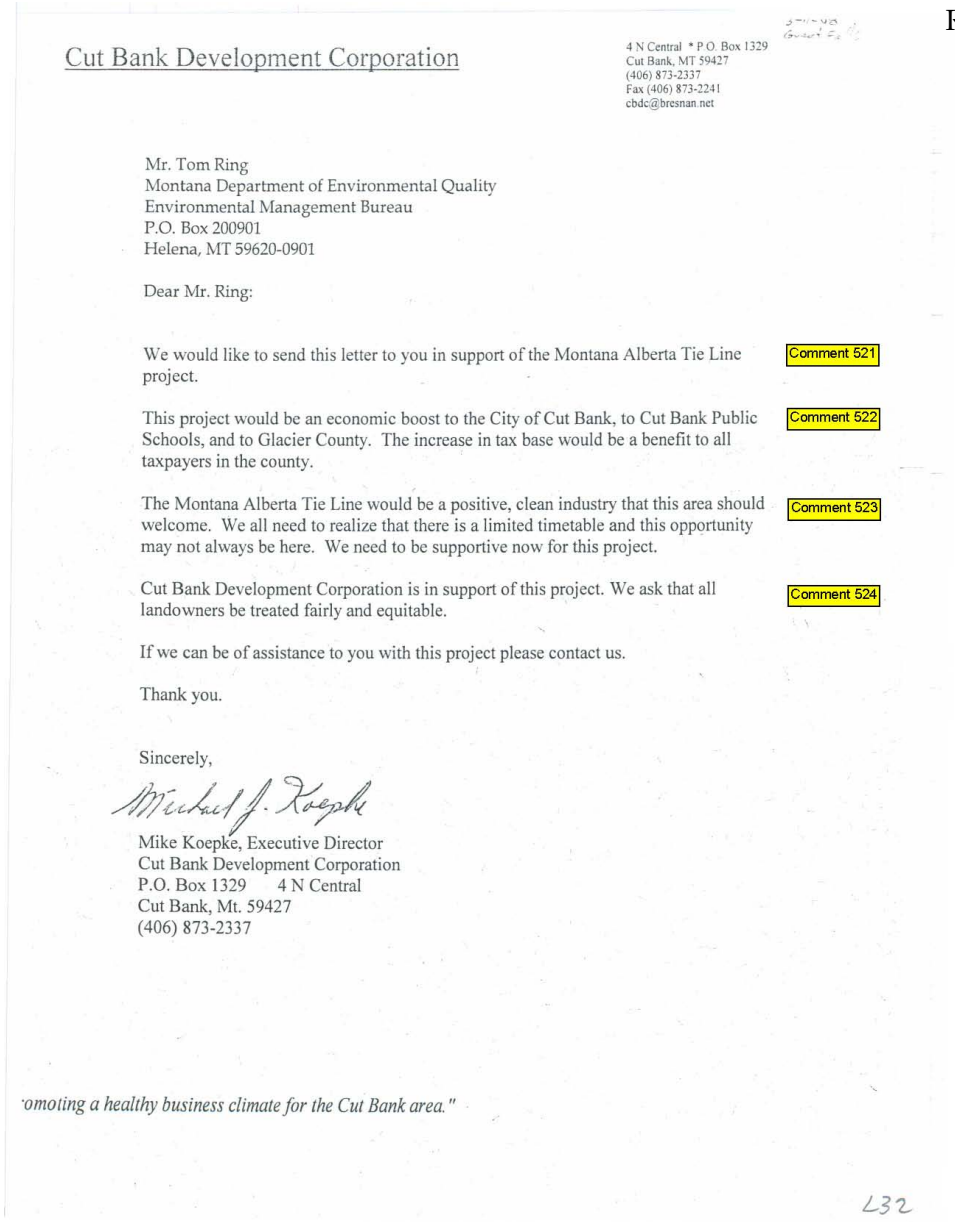
I wish to be on record in support for the MATL line.

Thank you.

Michael J. Koepke

431

Response 520: Comment noted.



Cut Bank Development Corporation

4 N Central * P.O. Box 1329
Cut Bank, MT 59427
(406) 873-2337
Fax (406) 873-2241
cbdc@bresnan.net

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

We would like to send this letter to you in support of the Montana Alberta Tie Line project. Comment 521

This project would be an economic boost to the City of Cut Bank, to Cut Bank Public Schools, and to Glacier County. The increase in tax base would be a benefit to all taxpayers in the county. Comment 522

The Montana Alberta Tie Line would be a positive, clean industry that this area should welcome. We all need to realize that there is a limited timetable and this opportunity may not always be here. We need to be supportive now for this project. Comment 523

Cut Bank Development Corporation is in support of this project. We ask that all landowners be treated fairly and equitable. Comment 524

If we can be of assistance to you with this project please contact us.

Thank you.

Sincerely,

Michael J. Koepke

Mike Koepke, Executive Director
Cut Bank Development Corporation
P.O. Box 1329 4 N Central
Cut Bank, Mt. 59427
(406) 873-2337

omoting a healthy business climate for the Cut Bank area."

L32

Response 521 to 524: Comments noted.

Hydro Solutions Inc

February 28, 2008

ORIGINAL COPY

Mr. Jerry McRae
Mac's Farm
1810 19th Lane NE
Dutton, Montana 59433

Re: MATL Agricultural Impact Cost Estimate

Dear Mr. McRae:

Comment 525

Introduction

This report was prepared by Fehringer Agricultural Consulting, Inc. (Fehringer) in conjunction with HydroSolutions Inc (HydroSolutions) to update cost estimates for the agricultural impact due to the proposed Montana-Alberta Tie Ltd. (MATL) power poles installation on your farm.

Analysis

Attached please find our estimated costs of farming around MATL's proposed power poles. The attached sheets, DL-4 and DL-8, are for long span interior mono-pole (Layout D) and interior H-poles (Layout H) placements in a crop-fallow rotation, respectively. Layout D and H are the only placements that are projected to be on your property. These sheets were initially prepared by HydroSolutions and Fehringer for a Montana Department of Environmental Quality (Montana DEQ) study dated July 12, 2007. This study evaluated anticipated costs to farmers as a result of the MATL power poles. The original report's designated table names were retained so that these updated pages may be compared with the corresponding sheets in the original report. The footprint diagram, Figure 1, is attached as well. All eight the original poles layouts are shown on this page.

Table 1, listing your specific machinery size used for tillage, spraying, seeding, and harvesting, is also attached. "Footprint" amounts remain the same for these layouts as in the July 12, 2007 report. However, overlap areas increased for spraying and seeding since your sprayer is 134 feet instead of the 120 feet for the typical Conrad farmer. In the study, seeder width was 60 feet, whereas yours is 70 feet. Since the herbicide Maverick is

Billings Office
PO Box 80866
Billings, MT 59108-0866
Phone: (406) 655-9555
Fax: (406) 655-0575

Helena Office
PO Box 1779
Helena, MT 59624
Phone: (406) 443-6169
Fax: (406) 443-6385

Sheridan Office
1043 Coffeen Ave, Ste C
Sheridan, WY 82801
Phone: (307) 673-4482
Fax: (307) 673-4397

Red Lodge Office
PO Box 2446
Red Lodge, MT 59068
Phone: (406) 446-9940
Fax: (406) 446-1260

L38

applied for cheatgrass control and wildoat suppression, the "Fargo" application column was deleted in Table 1.

In addition to modifying implement widths, prices for inputs have significantly changed since the July 2007 report, and therefore have been modified as well. For example, RT3 (6 pound per gallon Roundup) is now $52 per gallon instead of $21.50. Price for phosphate fertilizer (11-52-0 or 18-46-0) has increased from $450 per ton to $800 per ton. It is projected that by the end of March, phosphate fertilizer will be $1,000 per ton. Urea nitrogen is now $600 per ton whereas it was also $450 per ton in June 2007.

Another modification to the cost analysis was to change the input to reflect your use of Maverick instead of Fargo herbicide. Cost per acre for Maverick is $10.01 instead of $15.00 for Fargo. Application expense was increased to $10.00 for spraying since you have to reduce your speed from 8 miles per hour to 4 miles per hour to go around the pole(s) with the 134 foot sprayer. This practice is currently used by you for spraying around power poles already in your fields. The speed reduction results in a 50% reduction in your acres per hour, thus doubling application cost. By not figuring a reduction in speed, even for a 120 foot sprayer in the July 2007 study, was an oversight.

Estimated harvesting expense increased due to projected diesel fuel prices of $3.50 to $4.00 per gallon by harvest time. In addition, combining expense was figured based on a 50 bushel per acre yield. Your long-term yield history for summer fallow winter wheat was estimated to be 60 bushels per acre. Harvesting cost is based on a base per acre fee plus a per bushel charge. The more the crop yields, the higher the combining expense. You stated that you paid $23 per acre in 2007; therefore $25 per acre is reasonable.

For crop loss, wheat value was modified to reflect increase in winter wheat prices, which is currently over $10 per bushel. In summer 2007, spring wheat price used for the original study was $6.00 per bushel. Winter wheat at that time was $5.00 to $5.50 per bushel. With increases in yield and price, the value of your crop in the footprint area is now estimated to be $600 per acre versus $300 in the 2007 study. The value increase also impacts the loss due to overlap. In the original study, overlap damage was projected at 20% of the crop value per acre.

The last modification to the cost of farming around MATL poles was in the cost of weed control. Currently, you have employees apply all the herbicides around current poles, and do not feel comfortable having them apply a residual herbicide that may result in damage outside of the poles' projected five foot buffer. As you stated, you now have your employees apply RT3 three times during the fallow season, and then apply Maverick and the "In Crop Spraying" mixture during the cropping year. This represents five applications of herbicides in two years.

Conclusion

In summary, the annual cost of farming around Layout D and Layout H were $107.98 and $120.57 per acre in the original 2007 study, respectively. With the revisions outlined above, your annual cost is now estimated at $225.50 per acre for long span mono-pole interior field placement (Layout D). For H-pole interior placement (Layout H), your annual cost is estimated at $255.12 per acre. Please refer to Attachments DL-4 and DL-8 for the derivation of costs as summarized in Table 2. The above referenced modifications reflect your current cost of farming around poles. These costs have substantially increased in comparison to the original 2007 study. The basis and foundations for the modifications to the estimating procedure have been outlined above.

Standard of Care

Services performed by HSI personnel for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area under similar budget and time restraints. No warranty, expressed or implied, is made. Since this evaluation was developed specifically for your operation, none of the information contained in this revised report and attachments may be use against Montana DEQ.

HSI appreciates this opportunity to provide our services to Jerry McRae. If you have any questions regarding the content of this report, or if I can be of further assistance, please contact Neal Fehringer at 373-5985 or Shane Bofto at 655-9555.

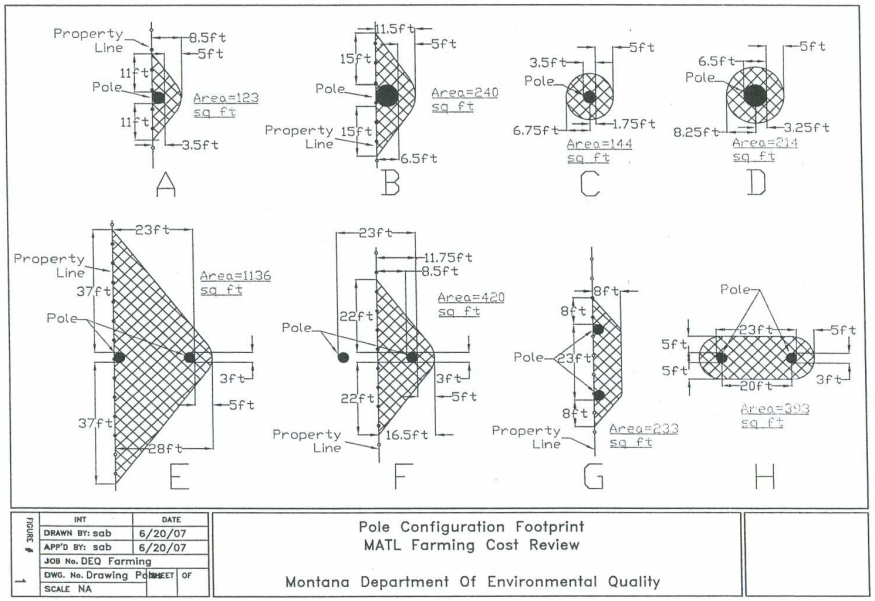
Sincerely,

Neal E. Fehringer
Certified Professional Agronomist, C.C.A.
Fehringer Agricultural Consulting, Inc.

Shane A. Bofto
Senior Environmental Engineer
HydroSolutions Inc

Attachments:

Figure 1 – Pole Configuration Footprint
Table 1 – McRae Footprint Overlap
Table 2 – McRae Dryland Cost of Farming Around Pole(s)
Attachment DL-4
Attachment DL-8



Fehringer Agricultural Consulting

Table 1. McRae Footprint and Overlap

Layout	Structure	Pole Diam. (ft)	Location	Minimum Buffer Distance From Center of Pole (ft)	Footprint (square feet)	McRae Implement Widths (feet)			
						70	134	36	70
						Overlap (square feet)			
						Harrow	Spraying	Combine	Seeding
D	Mono-pole	6.5	Interior	3.25	214	19,022	63,356	5,937	19,022
H	H-pole	3.0	Interior	1.5	393	21,511	68,086	7,237	21,511

Notes: Mono-pole: Long span are 6.5-ft diameter.
H-Pole: 3-ft diameter each, 20-ft separation center to center, 23-ft from outside pole to outside pole
5-ft safety buffer

Table revised by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 2/25/08.

Fehringer Agricultural Consulting

Table 2. McRae Dryland Costs of Farming Around Pole(s).

Layout[1]	Structure	Pole Diam. (ft)	Location	Farming Practice	
				Winter Wheat-Fallow	
				Information Source	Annual Cost (per acre)
D	Mono-pole	6.5	Interior	Attachment DL-4	**$227.50**
H	H-pole	3.0	Interior	Attachment DL-8	**$255.12**

Notes: [1]From Figure 1.
Mono-pole: Long span is 6.5-ft diameter.
H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.
Safety buffer: 5-ft.

Table revised by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 2/25/08.

Attachment DL-4

Fehringer Agricultural Consulting

Dryland Wheat-Fallow Rotation

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft²	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	19,022	0.437	$3.06
Chemical Fallow:										
Roundup (RT3)	$52.00	gallon	16	ounce	4	$26.00				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$10.00	acre			4	40.00	71.22	63,356	1.454	103.58
Wildoat/Cheatgrass Control:										
Maverick	$15.00	ounce	0.667	pound	1	$10.01				
Application	$10.00	acre			1	10.00	20.01	63,356	1.454	29.10
Fertilizer:										
Phosphate[1]	$800	ton	60	pound	1	$24.00				
Nitrogen[2] (46-0-0)	$600	ton	210	pound	1	63.00	87.00	19,022	0.437	37.99
Planting:										
Seed	$30.00	cwt	60	pound	1	$18.00				
Seeding	$13.00	acre			1	13.00	31.00	19,022	0.437	13.54
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$10.00	acre			1	10.00	16.62	63,356	1.454	24.17
Harvesting:										
Combine	$25.00	acre			1	$25.00	25.00	5,937	0.136	3.41
Crop Loss:										
Quality/Quanity in Overlap	$10.00	bushel	60	bushel	20%	$120.00	120.00	63,356	1.454	174.53
Pole Footprint	$10.00	bushel	60	bushel		$600.00	600.00	214	0.005	2.95
Weed Control Around Pole:										
Roundup (RT3)	$52	acre	16	ounce	3	$19.50	19.50	214	0.005	0.10
Maverick	$15.00	ounce	0.667	pound	1	$10.01	10.10	214	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.62	6.62	214	0.005	0.03
Labor & Equipment	$50	hour	0.25	hour	5	$62.50	62.50			62.50
TOTAL COST PER POLE DURING 2 YEAR ROTATION										**$455.00**
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR										**$227.50**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.
[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 2/25/08.

Attachment DL-8

Fehringer Agricultural Consulting

Dryland Wheat-Fallow Rotation

H-Pole in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft²	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	21,511	0.494	$3.46
Chemical Fallow:										
Roundup (RT3)	$52.00	gallon	16	ounce	4	$26.00				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$10.00	acre			4	40.00	71.22	68,086	1.563	111.32
Wildoat/Cheatgrass Control:										
Maverick	$15.00	ounce	0.667	pound	1	$10.01				
Application	$10.00	acre			1	10.00	20.01	68,086	1.563	31.27
Fertilizer:										
Phosphate[1]	$800	ton	60	pound	1	$24.00				
Nitrogen[2] (46-0-0)	$600	ton	210	pound	1	63.00	87.00	21,511	0.494	42.96
Planting:										
Seed	$30.00	cwt	60	pound	1	$18.00				
Seeding	$13.00	acre			1	13.00	31.00	21,511	0.494	15.31
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$10.00	acre			1	10.00	16.62	68,086	1.563	25.97
Harvesting:										
Combine	$25.00	acre			1	$25.00	25.00	7,237	0.166	4.15
Crop Loss:										
Quality/Quanity in Overlap	$10.00	bushel	60	bushel	20%	$120.00	120.00	68,086	1.563	187.56
Pole Footprint	$10.00	bushel	60	bushel		$600.00	600.00	393	0.009	5.41
Weed Control Around Pole:										
Roundup (RT3)	$52	acre	16	ounce	3	$19.50	19.50	393	0.009	0.18
Maverick	$15.00	ounce	0.667	pound	1	$10.01	10.10	393	0.009	0.09
In Crop Herbicide Mix (application figured below)					1	$6.62	6.62	393	0.009	0.06
Labor & Equipment	$50	hour	0.33	hour	5	$82.50	82.50			82.50
TOTAL COST PER POLE DURING 2 YEAR ROTATION										**$510.24**
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR										**$255.12**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.
[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 2/25/08.

Response 525: Because the costs and prices used previously have increased substantially, the farmer economics were recalculated and are shown in Section 3.13 using updated 2008 numbers.

3-11-08
Great Falls
no Journal
Comment

Doug

MCN

From: "Doug" <dcbanka@earthlink.net>
To: <jvanthof@tonbridgecorp.com>
Sent: Friday, March 07, 2008 1:00 PM
Subject: MATL line

Tonbridge Power Inc.
Waterpark Place, 20 Bay Street, Suite 1100, Toronto, Ontario
M5J2N8

Douglas Banka
688 Business 15
Conrad, Montana
59425

Comment 526

Dear Johan van't Hof,

I visited with you on the phone a week or so ago about the MATL power line that is proposed through my farm. We seemed to have a couple of issues regarding the EIS statement about the prices associated with farming around the proposed line. First of all I think all of this will be fruitless as the main desire is to have the line go in a straight line format instead of the diagonal format. The use of single poles instead of the H structures. I have 8 separate transmission and distribution lines now on the farm. The H structure is the most difficult to go around and the most costly to operate around. I presently have an H structure on the farm. It presents the most weed issues and the most varmit issues of any other structure.

However, with that stated, the costs in the EIS are not accurate and alchemy at best.

For instance. The price of Roundup RT3 is not 21.50 per gallon but closer to 55.00 per gallon. Monsanto has informed us that we should expect a 3 dollar per month increase in the price. Monsanto has increased in Feb. 2008 the price of RT3 18.00 alone. That was with the base price of 32 to 36 dollars per gallon.

The price of Topdress N is not 450 per ton but 550 per ton.

The price of Phosphate fert is not 450 per ton but 850 per ton. The fertilizer dealer expects the price to exceed 1000 per ton within months.

The EIS statement implies that there is 60 lbs of fertilizer banded with the seed. However in my area the number is closer to 75 lbs. 60 lbs of fert @450 per ton is 13.50, 75 lbs @ 850 per ton is 31.88 per acre.

Seed cost is not 16.00 per cwt but closer to 20.00 - 24.00 per bushel. The price will depend on the availablity and quality of the seed being planted. ie certified, registered etc. Treating the grain is to be added to that number. Treating can vary from 1.50 to 3.00 per bushel and higher.

The harvest costs are not 20.00 per acre but close to the 2007 numbers of 27.00 and higher. I was quoted 27.00 by the custom harvestors in this area. I am sure the price will not be lower for 2008

In the past couple of years the cost of farming an acre of ground has held steady at 110.00 - 130.00 per acre. However in the 2008 season the cost will be over double those figures. In operating around an H structure it takes me approximately 2.4 acres of area. That figure is used from the GPS in my sprayer.

A large issue that still is on the horizon is the aggressive tactics used by your agents in the earlier attempts of easement signings. That has created a very disturbing issue for many people. VERY DISTURBING.

I do have many documents supporting my numbers above. If you would like to see them please advise. As the EIS statement quotes, farmers will profit from having poles on their farm. I can assure you that I will NEVER profit from this line having poles in the middle of my fields. A straight line format with single poles is the direction of least impact for me and the least costly to farm around.

3/11/2008

L37

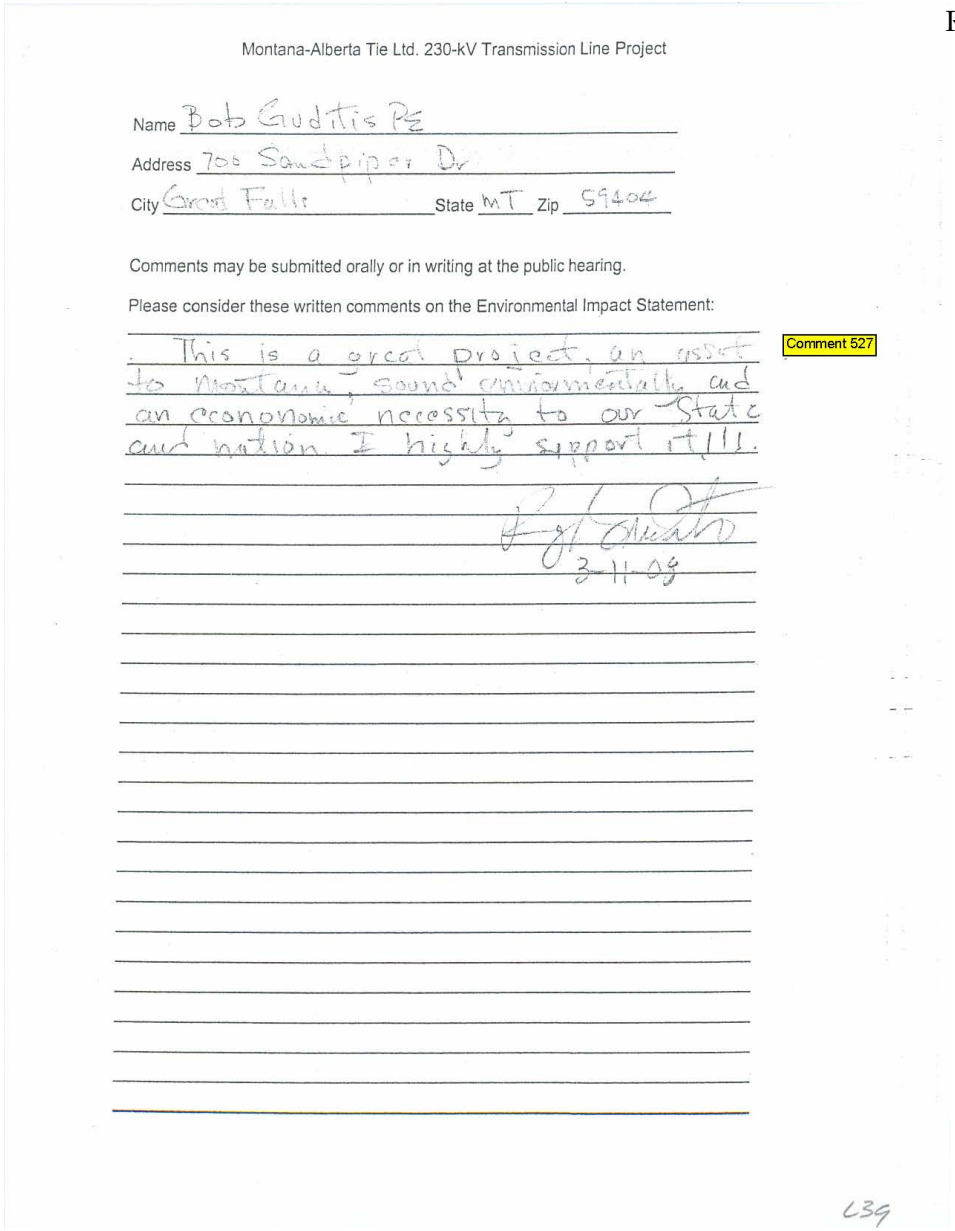
One last issue is the creation of a fire by the power poles. I have had fires from power lines that have created sparks from arcing wires and shorted insulators etc. One as recently as 3 weeks ago. Who is the agency responsible for damages from such actions.

Thank you for your time.

Douglas C. Banka
688 Business 15
Conrad, Montana
59425

3/11/2008

Response 526: Because the costs and prices used previously have increased substantially, the farmer economics were recalculated and are shown in Section 3.13 using updated 2008 numbers.



Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Bob Guditis PE

Address 708 Sandpiper Dr

City Great Falls State MT Zip 59404

Comments may be submitted orally or in writing at the public hearing.

Please consider these written comments on the Environmental Impact Statement:

This is a great project, an asset to Montana, sound environmentally and an economic necessity to our State and nation. I highly support it!!!

3-11-09

Comment 527

L39

Response 527: Comment noted.

Response 528: Comment noted.

March 11, 2008

Tom Ring
Montana Department of Environmental Quality Mgmt Bureau
PO Box 200901
Helena, MT 59620-0901

RE: Support of MATL

Dear Mr. Ring:

Comment 528

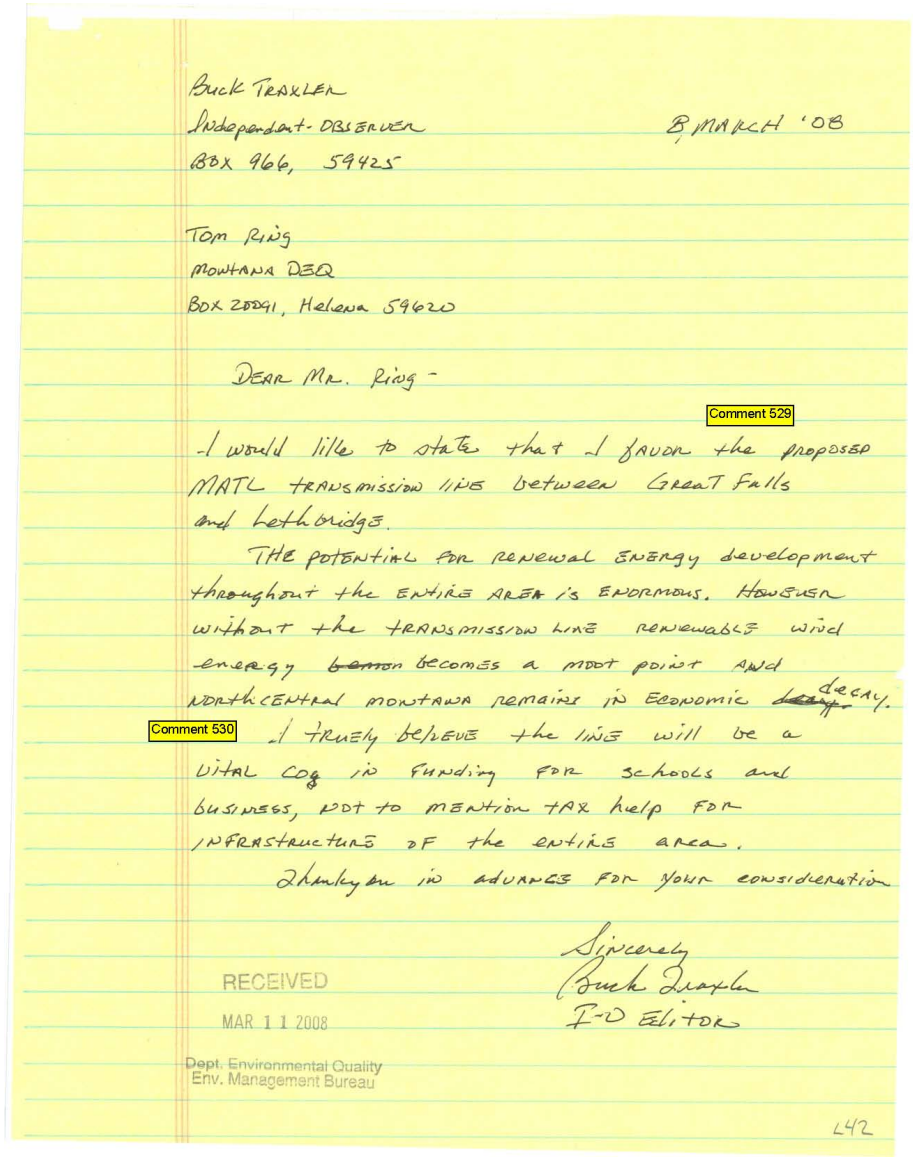
I am writing in support of the MATL. I support the MATL because it benefits both consumers and generators through additional connection with markets in demand of energy. It also will allow additional purchasing options for Montana utilities resulting in lower rates for consumers. MATL is an economic opportunity for Montana by providing additional transmission capacity.

My name is Vanessa Bucklin, and I support MATL.

Sincerely,

Vanessa Y. Bucklin

L42



Buck Traxler
Independent- Observer
Box 966, 59425

8 March '08

Tom Ring
Montana DEQ
Box 200901, Helena 59620

Dear Mr. Ring -

Comment 529

I would like to state that I favor the proposed MATL transmission line between Great Falls and Lethbridge.

The potential for renewal energy development throughout the entire area is enormous. However without the transmission line renewable wind energy ~~comon~~ becomes a moot point and northcentral Montana remains in economic ~~decay~~ decay.

Comment 530

I truely believe the line will be a vital cog in funding for schools and business, not to mention tax help for infrastructure of the entire area.

Thankyou in advance for your consideration

Sincerely
Buck Traxler
I-O Editor

RECEIVED
MAR 11 2008
Dept. Environmental Quality
Env. Management Bureau

L42

Response 529 and 530: Comments noted.

Ben Ober,
Commission Chairman
Allan Underdal,
Commissioner
David Miller,
Commissioner
Merle Raph,
County Attorney
Donna Matoon,
Sheriff
Dan B. Whitted,
Coroner
Commissioners Office
406-424-8310
Fax #406-424-8301



Mary Ann Harwood,
Clerk & Recorder
Sandra Peers,
Clerk of Court
Boyd Jackson,
Treasurer/Assessor
Supt. Of Schools
Helen I. Schnee,
Public Administrator
Russ Mann
Justice of the Peace
Clerk & Recorders
Office #406-424-8300
Email address:
tcclerk@3rivers.net

COUNTY OF TOOLE

226 1ST Street South
Toole County Courthouse, Shelby, MT 59474

March 10,2008

Montana Department of Environmental Quality
Environmental Management Bureau
Attn: Tom Ring
P.O. Box 200901
Helena, Mt. 59620-0901

To Whom It May Concern:

Comment 531

I am writing this letter in support of the MATL line to be constructed in Northern Montana . It would be a great economical benefit to all the citizens of the area either by economical value or reducing taxes within the area.

I do not feel that there are any negatives to this project and it is a win win deal.

Again, I am writing to inform you of my full support of the project.

Sincerely,

Ben Ober

Ben Ober
Toole County Commissioner

RECEIVED
MAR 11 2008
Dept. Environmental Quality
Env. Management Bureau

443

Response 531: Comment noted.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Benton Lake National Wildlife Refuge
922 Bootlegger Trail
Great Falls, Montana 59404-6133

March 10, 2008

IN REPLY REFER TO:
NWRS/BNLNWR
Mail Stop 61510

RECEIVED
MAR 11 2008
Dept. Environmental Quality
Env. Management Bureau

Mr. Tom Ring
Environmental Sciences Specialist
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

Mr. Ring:

This correspondence is in response to the receipt of the Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. 230-kV Transmission Line Summary. Benton Lake National Wildlife Refuge (Refuge) is nationally recognized as a migratory bird area and on March 17, 2002, the Refuge was designated a Globally Important Bird Area by the American Bird Conservancy. In addition, the Refuge is also recognized as a regional site by the Western Hemisphere Shorebird Reserve Network.

In a correspondence dated November 29, 2006, from the Service to Mr. Patrick Mullen of AMEC Earth and Environmental, we discussed the proposed transmission line and the U.S. Fish and Wildlife Service's suggestion on modifications that can minimize the impact to wildlife resources.

Comment 532

Specifically, the Service stated that our preferred placement of the transmission lines would be ALT 4_SEGMENTC_BRADYFRONTAGE with slight modification. We recommended that the route be located within 150 feet east and north of the current line, starting 5 miles north of the Refuge (Section 4, T23N, R3E) and ending 3 miles south of the Refuge. As an alternative, the Service also recommended utilizing ALT4_SEGMENTA_WESTGREATFALLS which is routed west and south of the Refuge. These modifications will decrease the likelihood of bird strikes and increase visibility to migratory birds.

L44

Our review of the Summary Draft EIS indicates that these modifications were not incorporated into the Preferred Alternative. We would like to reiterate that we suggest these modifications are made to minimize the impact of the transmission line to wildlife resources. If you have any questions, please contact Refuge Biologist Vanessa Fields at (406)727-7400 Extension 219.

Sincerely,

Kathleen A. Burchett
Refuge Manager

Enclosure

cc:
Patrick Mullen, AMEC Earth and Environmental, 21 North Last Chance Gulch, Ste 208, Helena, Montana 59601

Response 532: The proposed action and all alternatives avoid refuge lands. Overhead ground wires on alternatives east of the refuge could be marked to reduce avian mortality from line collisions. Also see Section 3.8.3.2, which has been revised. Alternative 4 uses about 30 miles of U.S. Fish and Wildlife Service's preferred placement.

Browning Area Chamber of Commerce
PO Box 990 • Browning MT. 59417 • (406)-338-4015

March 12, 2008

Mr. Chairman:

Comment 533 Browning Area Chamber of Commerce serves the Blackfeet Reservation businesses and is in support of the Montana Alberta Transmission Line. The environmental impact is little compared to the economic impact it will have on our Reservation. Unlike many rural communities, this Reservation does not have to worry about out migration of its population. The population is increasing, indicating not only a large workforce, but a large consuming force, with a need for more local services & goods. The reservation borders Glacier Park this coupled with our unique Blackfeet Culture indicates enormous potential for tourism services. MATL will assist in realizing the potential of our area.

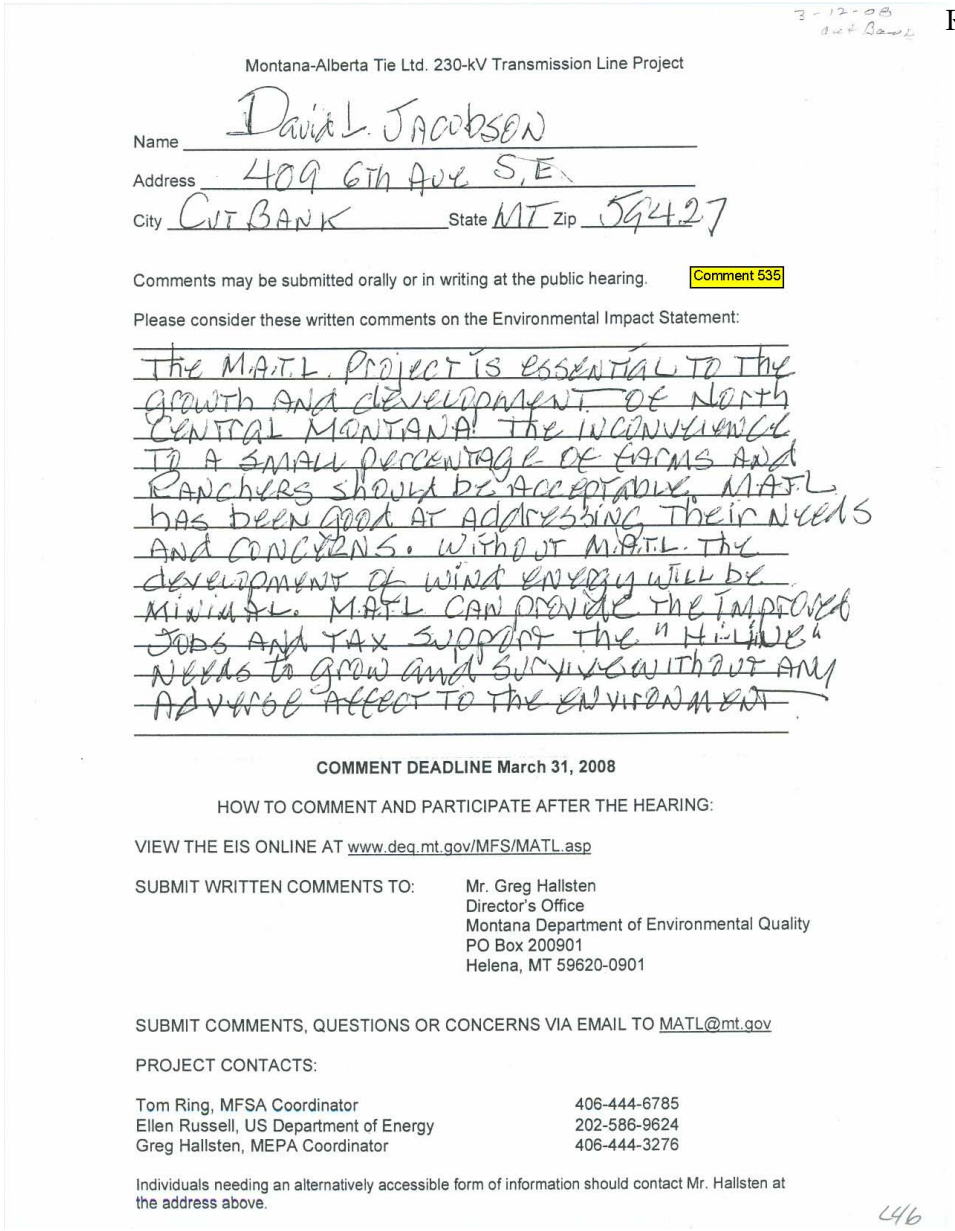
Comment 534 As a nation, our energy demands are ever increasing and our options for production are limited. The development of clean wind power and the lines to transport it makes sense. Please support the construction of the MATL Transmission Line. The environmental impacts are minor and the economic benefits are great. We appreciate the time and attention you have given our request.

Sincerely,

Johnel H. Barcus, Member
PO Box 469
Browning, MT 59417
406 338-4015

645

Response 533 and 534: Comments noted.



3-12-08
Bozeman

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name David L. JACOBSON

Address 409 6TH AVE S.E.

City CUT BANK State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 535

Please consider these written comments on the Environmental Impact Statement:

THE M.A.T.L. PROJECT IS ESSENTIAL TO THE GROWTH AND DEVELOPMENT OF NORTH CENTRAL MONTANA. THE INCONVENIENCE TO A SMALL PERCENTAGE OF FARMS AND RANCHERS SHOULD BE ACCEPTABLE. M.A.T.L. HAS BEEN GOOD AT ADDRESSING THEIR NEEDS AND CONCERNS. WITHOUT M.A.T.L. THE DEVELOPMENT OF WIND ENERGY WILL BE MINIMAL. M.A.T.L. CAN PROVIDE THE IMPROVED JOBS AND TAX SUPPORT THE "HI-LINE" NEEDS TO GROW AND SURVIVE WITHOUT ANY ADVERSE AFFECT TO THE ENVIRONMENT

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

446

Response 535: Comment noted.

Response 536: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Shawn Barrett

Address 26-4th Ave So

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing.

Please consider these written comments on the Environmental Impact Statement:

I do support the construction of the Montana / Alberta tie Line near Cut Bank & surrounding Communities.

Comment 536

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

447

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Mary Ellingson

Address 306 2nd ave. SE

City Cut Bank State mt. Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 537

Please consider these written comments on the Environmental Impact Statement:

This is to voice my support for the Montana – Alberta Tie Ltd. Transmission Line project. I feel this will be a huge boost for the area & community. This will also help bring more jobs to the community.

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

C48

Response 537: Comments noted.

Response 538: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name CLINTON J. ANDERSON
Address 442 Highway 213 N
City CUT BANK State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 538

Please consider these written comments on the Environmental Impact Statement:

I think it's very important for the development of the community.

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L49

Response 539: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Alan Anderson

Address 425 6th Ave SE

City Cut Bank, MT State ____ Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 539

Please consider these written comments on the Environmental Impact Statement:

This is a development that is very important to our community.

A J Anderson

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

456

Response 540: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Stephanie Brawning

Address 601 West main

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 540

Please consider these written comments on the Environmental Impact Statement:

I think this is a great project not only to increase our tax base in this area but to increase employment opportunities.

I appreciate that you are taking into consideration the impact on the environment for the farmers as well as other land owners.

Your commitment to the community of Cut Bank is impressive.

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

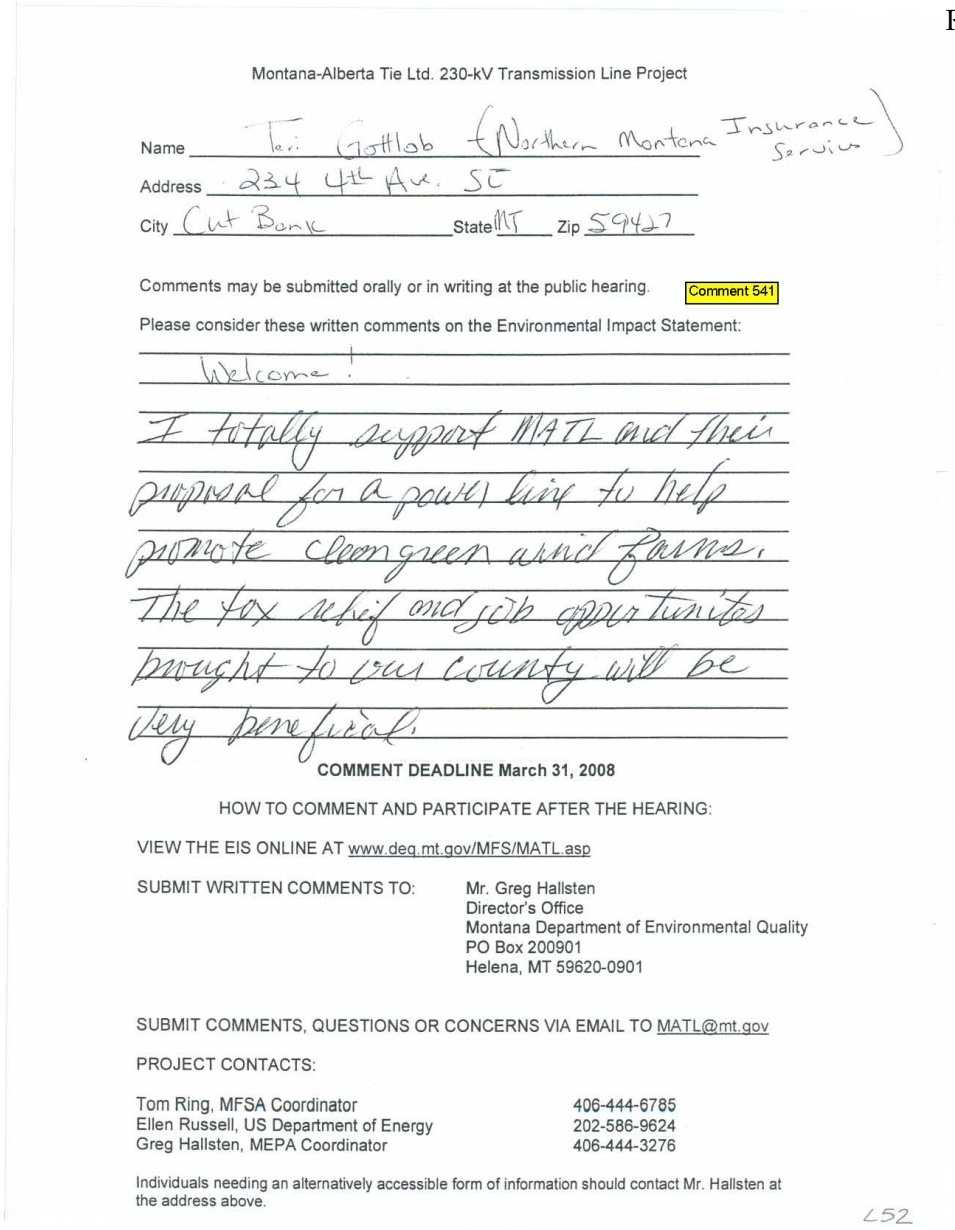
SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

45/



Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Teri Gottlob (Northern Montana Insurance Service)

Address 234 4th Ave. SE

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 541

Please consider these written comments on the Environmental Impact Statement:

Welcome!

I totally support MATL and their proposal for a power line to help promote clean green wind farms. The tax relief and job opportunities brought to our county will be very beneficial.

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

452

Response 541: Thank you for your comment

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name JEFF GOTTLOB AMERICAN PIPE & Supply

Address 234 4TH AVE SE

City CUT BANK State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 542

Please consider these written comments on the Environmental Impact Statement:

I support the electric transmission being proposed by MATL. The construction of this will bring jobs and needed tax base to our county. MATL genuine concern for private property (farmers etc.) is encouraging in satisfying everyone's needs.

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

453

Response 542: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Scott Laird

Address 322 2nd Ave SE

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 543

Please consider these written comments on the Environmental Impact Statement:

The one constant in our area is the wind, and anything we can do to use it is needed. With declining finances in our schools & local govt. areas, this Project is a huge benefit w/ the increase in taxable values also.

The ability to use clean energy is also a major factor. This is definitely a win-win situation for everyone

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

454

Response 543: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Juanita M Fish

Address 421 2nd St NE

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 544

Please consider these written comments on the Environmental Impact Statement:

I would like to express my support of the upcoming MATL project. I feel it is necessary for North Central Montana to continue to grow in the energy world. Without proper transmission we cannot support the growth of the new wind energy. Please consider our economy in your consideration for this project.

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L55

Response 544: Comment noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Fritz H. Smith

Address 14 W. Main St. PO Box 85

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 545

Please consider these written comments on the Environmental Impact Statement:

I support this project

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L56

Response 545: Comment noted.

3-19-09
Cut Bank

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Wade Johnson

Address 436 Circle Drive

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 546

Please consider these written comments on the Environmental Impact Statement:

The State of Montana is in need of economic development as well as development of green, renewable energy sources. The MATL project is a positive step in solving both of these problems.

I strongly recommend the approval and construction of the MATL project.

Sincerely

Wade Johnson

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L58

Response 546: Comment noted.

Billman's Home Décor LLP

March 11, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 547

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Montana Alberta Ti Transmission Line. Billman's Home Décor LLP would like to go on record offering its full support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). Our business is located in Cut Bank Montana and is dedicated to the promotion and growth of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

Comment 548

Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project and we urge the Montana DEQ and BLM issue the needed certificates of compliance and right-of-ways as required.

Sincerely

Valerie Vermulm, President
Billman's Home Decor

L66

R&G Rentals, J&C Rentals, D&V Rentals

March 11, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 547

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Montana Alberta Ti Transmission Line. We would like to offer our full support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). Our family owns several rentals businesses in Cut Bank making us dedicated to the continued growth of the area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the entire Golden Triangle area.

Comment 548

Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project and we urge the Montana DEQ and BLM issue the needed certificates of compliance and right-of-ways as required.

Sincerely

Rick Billman, Jeff Billman, Valerie Vermulm
R&G Rentals, J&C Rentals, D&V Rentals

L67

3-12-08
Cut Bank

Billman's Inc

March 11, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 547

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Montana Alberta Ti Transmission Line. Billman's Inc would like to go on record offering its full support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). Our business is located in Cut Bank Montana and is dedicated to the promotion and growth of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

Comment 548

Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project and we urge the Montana DEQ and BLM issue the needed certificates of compliance and right-of-ways as required.

Sincerely

Rick Billman, President
Billman's Inc

268

Responses 547 and 548: Comments noted.

3-13-08
Received

PONDERA COUNTY SANITARIAN

CORRINE A ROSE, RS
20 4TH AVE SW
CONRAD, MT 59425
crose@3rivers.net
(406) 271-4036 Cell 868-7935

March 13, 2008

TOM RING, ENVIRONMENTAL SCIENCES SPECIALIST, MT DEQ

Comment 549

I am a life long resident of Teton County and operate the family farm with my husband in the Pendroy Community. I am also the County Sanitarian for both Teton and Pondera Counties. I am supporting the construction of the MATL line.

I believe that the technology is available that will allow us to develop our natural resources, which will help to meet our energy needs, while maintaining our clean and healthful environment. I also believe that this can be accomplished while recognizing private property rights.

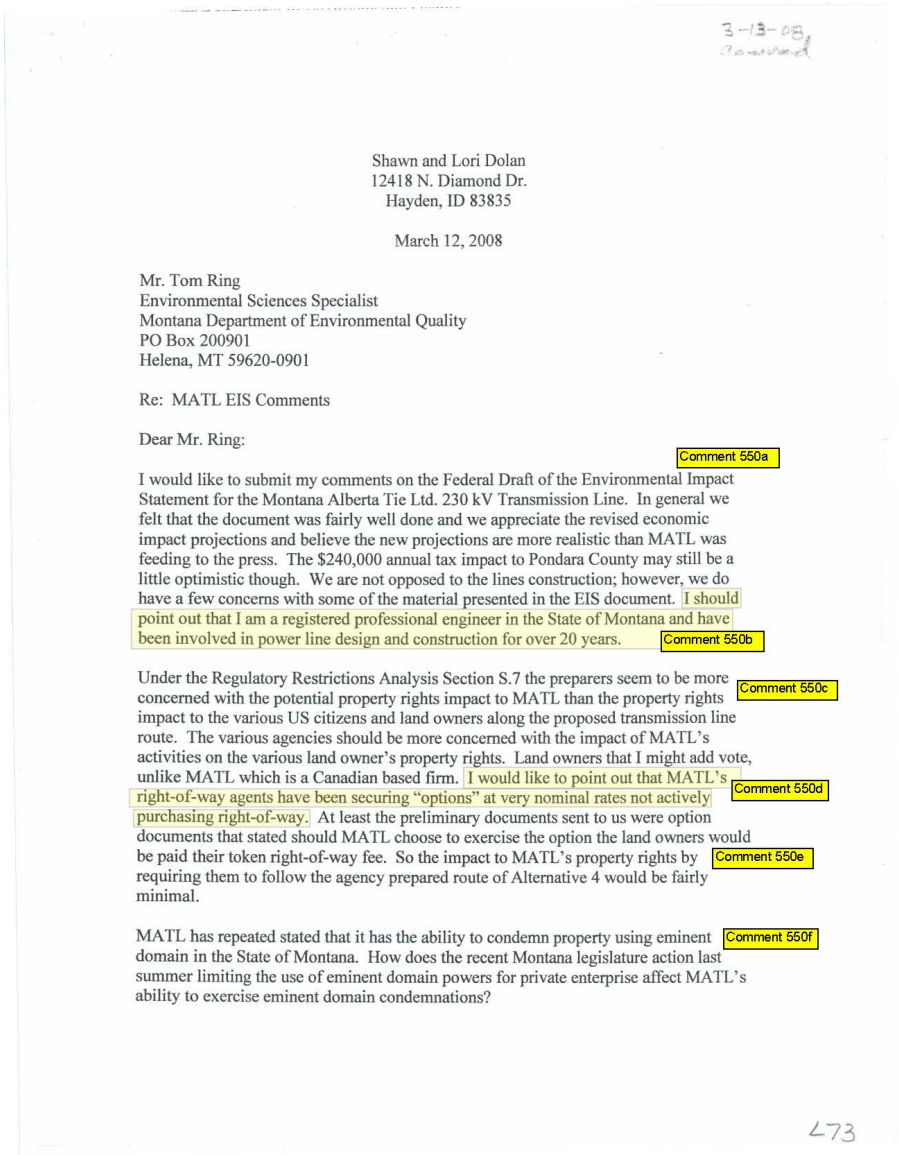
This has the potential to bring much needed economic development to our area which will benefit our local business and our tax base.

Sincerely,

Corrine A Rose

L80

Response 549: Comment noted.



3-13-08

Shawn and Lori Dolan
12418 N. Diamond Dr.
Hayden, ID 83835

March 12, 2008

Mr. Tom Ring
Environmental Sciences Specialist
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Re: MATL EIS Comments

Dear Mr. Ring:

Comment 550a

I would like to submit my comments on the Federal Draft of the Environmental Impact Statement for the Montana Alberta Tie Ltd. 230 kV Transmission Line. In general we felt that the document was fairly well done and we appreciate the revised economic impact projections and believe the new projections are more realistic than MATL was feeding to the press. The $240,000 annual tax impact to Pondara County may still be a little optimistic though. We are not opposed to the lines construction; however, we do have a few concerns with some of the material presented in the EIS document. I should point out that I am a registered professional engineer in the State of Montana and have been involved in power line design and construction for over 20 years. Comment 550b

Under the Regulatory Restrictions Analysis Section S.7 the preparers seem to be more concerned with the potential property rights impact to MATL than the property rights impact to the various US citizens and land owners along the proposed transmission line route. The various agencies should be more concerned with the impact of MATL's activities on the various land owner's property rights. Land owners that I might add vote, unlike MATL which is a Canadian based firm. I would like to point out that MATL's right-of-way agents have been securing "options" at very nominal rates not actively purchasing right-of-way. At least the preliminary documents sent to us were option documents that stated should MATL choose to exercise the option the land owners would be paid their token right-of-way fee. So the impact to MATL's property rights by requiring them to follow the agency prepared route of Alternative 4 would be fairly minimal.

Comment 550c

Comment 550d

Comment 550e

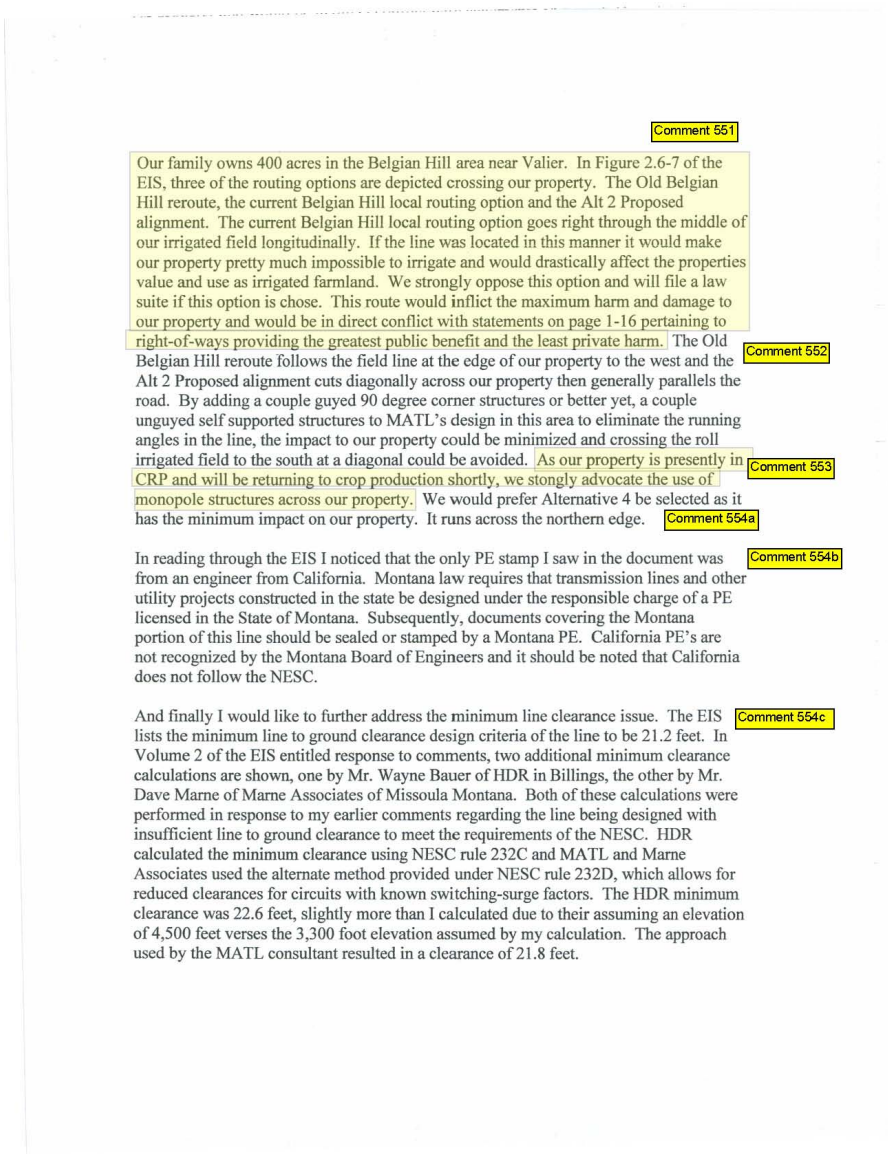
MATL has repeated stated that it has the ability to condemn property using eminent domain in the State of Montana. How does the recent Montana legislature action last summer limiting the use of eminent domain powers for private enterprise affect MATL's ability to exercise eminent domain condemnations?

Comment 550f

473

Responses 550a through 550e. See responses to comments 436 and 441 through 443.

Response 550f: Chapter 512, Montana Session Laws 2007, revised Montana's urban renewal laws. It precludes a city or town from using its power of eminent domain to obtain property with the intent to sell, lease, or provide the property to a private entity. This law does not apply to MATL because it is not a city or town exercising eminent domain authority under the urban renewal laws.



Comment 551

Our family owns 400 acres in the Belgian Hill area near Valier. In Figure 2.6-7 of the EIS, three of the routing options are depicted crossing our property. The Old Belgian Hill reroute, the current Belgian Hill local routing option and the Alt 2 Proposed alignment. The current Belgian Hill local routing option goes right through the middle of our irrigated field longitudinally. If the line was located in this manner it would make our property pretty much impossible to irrigate and would drastically affect the properties value and use as irrigated farmland. We strongly oppose this option and will file a law suite if this option is chose. This route would inflict the maximum harm and damage to our property and would be in direct conflict with statements on page 1-16 pertaining to right-of-ways providing the greatest public benefit and the least private harm. The Old Belgian Hill reroute follows the field line at the edge of our property to the west and the Alt 2 Proposed alignment cuts diagonally across our property then generally parallels the road. By adding a couple guyed 90 degree corner structures or better yet, a couple unguyed self supported structures to MATL's design in this area to eliminate the running angles in the line, the impact to our property could be minimized and crossing the roll irrigated field to the south at a diagonal could be avoided. As our property is presently in CRP and will be returning to crop production shortly, we stongly advocate the use of monopole structures across our property. We would prefer Alternative 4 be selected as it has the minimum impact on our property. It runs across the northern edge.

Comment 552

Comment 553

Comment 554a

In reading through the EIS I noticed that the only PE stamp I saw in the document was from an engineer from California. Montana law requires that transmission lines and other utility projects constructed in the state be designed under the responsible charge of a PE licensed in the State of Montana. Subsequently, documents covering the Montana portion of this line should be sealed or stamped by a Montana PE. California PE's are not recognized by the Montana Board of Engineers and it should be noted that California does not follow the NESC.

Comment 554b

And finally I would like to further address the minimum line clearance issue. The EIS lists the minimum line to ground clearance design criteria of the line to be 21.2 feet. In Volume 2 of the EIS entitled response to comments, two additional minimum clearance calculations are shown, one by Mr. Wayne Bauer of HDR in Billings, the other by Mr. Dave Marne of Marne Associates of Missoula Montana. Both of these calculations were performed in response to my earlier comments regarding the line being designed with insufficient line to ground clearance to meet the requirements of the NESC. HDR calculated the minimum clearance using NESC rule 232C and MATL and Marne Associates used the alternate method provided under NESC rule 232D, which allows for reduced clearances for circuits with known switching-surge factors. The HDR minimum clearance was 22.6 feet, slightly more than I calculated due to their assuming an elevation of 4,500 feet verses the 3,300 foot elevation assumed by my calculation. The approach used by the MATL consultant resulted in a clearance of 21.8 feet.

Comment 554c

Response 551 and 552: See the response to comment 436.

Response 553: Comment noted.

Response 554a: Comment noted.

Response 554b and 554c: See responses to comments 446. See the discussion of Safety Issues in the Consolidated Responses section.

Comment 555

MATL's Response on page 235 of Volume 2 acknowledges the differing calculated clearance results, but instead of identifying why they received different values from three different engineers by looking at the different assumptions used, they chose to adopt the bare minimum clearance provided by their consultant. As I pointed out and Mr. Bauer of HDR pointed out design clearances should be prudently greater than the absolute minimum code clearance. The minimum line clearance proposed by MATL is too low and poses a safety hazard to farmer operating equipment under their lines. MATL assumes equipment heights are limited to less than 14 feet in height. Modern farming equipment greatly exceeds this height and can directly contact the 230 kV conductors if constructed at the heights proposed by MATL and will result in a fatality.

Comment 556

To prove this point I contacted the John Deer Corporation and had them email me the dimensional details of their 9000 series combines. I have attached this information for your reference. The model 9870 combine from John Deer has an operational height of 16 feet 7 inches to the top of the combine's chute. If a farmer were to attach at typical 108 inch (9ft) CB antenna at the top of the cab of the combine (which is a very common practice) the operational height of the combine jumps to 21 feet 4 inches. This is at or above the minimum clearance proposed by MATL resulting in one electrocuted farmer. As my friend Allen Clapp the former chairman of the National Electric Code Clearances Committee is fond of saying "this is socially unacceptable behavior on the part of the utility".

Comment 557

The question at hand is whether or not MATL should design the line assuming that typical over height farm machinery such combines will be present. During my conversations with Mr. Clapp former NESC Clearances Committee Chairman last fall at a NESC code class, he indicated that in court a plaintiff's attorney could easily make that argument and win a large verdict against MATL if the line is designed at the proposed levels. Mr. Clapp indicated that jury awards for these kinds of cases runs at about $1 million dollars (US) per inch of perceived code violation. My experience has shown that Mr. Clapp's numbers might be a little low. The power company I work for was involved in an electrical contact law suite a few of years ago and the plaintiff was awarded 10.5 million dollars even though the line was built to code. The plaintiff's attorneys successfully argued that the utility should have foreseen that a billboard worker could come in contact with the power lines even though the lines met code.

Comment 558

The NESC requires power line conductors to be raised up to accommodate the operation of over height vehicles or machines and requires them to be raised is it is reasonable to assume that the area in question is being used by over height vehicles. I refer you to excerpts I've attached from the NESC Handbook, Sixth Edition. See pages 299 through 300. I've also attached excerpts from the 2007 version of the National Electric Safety Code covering NESC Rules 232C and 232D the governing rules of the code for this line. Since MATL has chosen to hang its hat on Rule 232D I refer you to 232D subpart 4, which states "The alternate clearance shall not be less than the clearance given in Table 232-1 or 232-2 computed for 98 kV ac to ground in accordance with 232C." Column 4 pertaining to land traversed by vehicles, such as cultivated, grazing, forest, orchards etc..

Response 555 to 558: See the discussion of Safety Issues in the Consolidated Responses section.

provides a base clearance level of 18.5 feet for voltages between 750V and 22 kV. The foot note on column 4 refers you to note 26 on the table which states "when designing a line to accommodate oversized vehicles, these clearance values shall be increased b y the difference between the known height of the oversized vehicle and 14 feet." (IEEE issued an errata sheet correcting the foot note reference on column 4 of Table 232-1 to reference footnote 26 not footnote 24 as was shown on the earlier publication of the NESC. Rule 232C requires .4 inches per kV above 22 kV to be added to the calculated clearance and 3% for each 1000 ft above 3300 ft of elevation. Now putting it all together the minimum clearance of the line across farmland to accommodate a combine with CB antenna assuming the minimum 98 kV clearance requirement asserted by Rule 232D.4 should be:

Base Clearance from Table 232-1 up to 22 kV	18.5 feet	Table 232-1
Overheight vehicle clearance adder 21 ft 4 inches – 14 feet =	7.3 feet	Note 26
Voltage Clearance Adder (98 kV – 22 kV) *.4 inches/kV =	2.5 feet	232C.1.a
	28.3 feet	
Elevation Multiplier (4,500 ft – 3,300 ft)/1000 ft * .03 + 1 =	x1.036	232C.1.b
	29.3 feet	

If the combine didn't have a CB antenna the clearance calculated above would drop to 24.4 feet assuming a maximum operating height of 16 feet 7 inches as published by the John Deer Company. However, my experience in dealing with farmers is that a lot of them do have CB or other radio antennas mounted to their combines. To allow for this fact, it is common utility practice to use minimum line to ground clearances above the bare minimums listed in the NESC tables when crossing farmland. As HDR indicated the Rural Utilities Services (RUS) Design Manual for High Voltage Lines (CFR 1724E-200) requires a minimum clearance of 24.9 feet for 230 kV lines, NSP uses 30 feet as does Grant County PUD . If the state accepts the low conductor levels proposed by MATL it could find itself a joint party in a lawsuit when a fatality occurs due to an electrical contact with the proposed line. I caution you to carefully consider this before you approve the MATL line as designed.

Comment 559

Respectfully Submitted,

Shawn Dolan, P.E.

Enclosures

Response 559: See the discussion of Safety Issues in the Consolidated Responses section. DEQ would require MATL to comply with the National Electrical Safety Code.

March 13, 2008

To: Montana Department Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring

My name is Everett Snortland. I reside at 207 South Colorado Street, Conrad, MT. 59425. My phone # is: 406-271-3777.

I was born and raised in Pondera County and I am a retired farmer. This was my main occupation for forty- three years.

I thank you for this opportunity to present testimony to you and your agency.

Comment 560 We in agriculture in the Golden Triangle have for many years produced wheat, barley, canola, hogs, cattle, lamb, wool and other products; most of which is exported. Wind generated energy is an environmental friendly product that has very good export potential.

Comment 561 The building and use of the Montana-Alberta Transmission Line will increase our tax base, improve our economy, create jobs and create a price competitive energy source. It will also ensure an adequate energy supply locally and statewide.

Your Agency's consideration and approval of wind energy transmission in this part of Montana will be greatly appreciated.

Respectfully submitted,

Everett

Everett M. Snortland

L76

Response 560 and 561: Comments noted.

March 12, 2008

Tom Ring
Environmental Science Specialist
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620

Dear Tom:

Thank you for sending the executive summary for the Environmental Impact Statement (EIS) regarding the Montana Alberta Tie LTD (MATL). You and your agency have been most helpful with explaining the process and the function of these hearings.

For the record my name is John Dallum, I live in Valier and presently serve the Valier School District as their Superintendent of Schools.

Comment 562 As I read the summary, what was not said or maybe could not be said, struck me. Perhaps a benefit to the nation section could be added to the EIS.

Bonneville Power Administrator, Steve Wright, in remarks to the People Utility District in Oregon recently reviewed the power situation.

"Utilities face complex decisions when acquiring the power we need."

"Utilities are looking at a number of different resource strategies…our situation will degrade further because of competing demand."

"We are looking at a supply deficit by 2010. Growth loads will make that come quicker." "We need an aggressive plan for providing power."

This document is the first step in solving a desperate need. Your fine office has preformed well implementing this plan.

Comment 563 On the MSU Green web site http://green.msu.com the question is asked "Why is it taking so long to develop more clean energy?"

Wind energy has the potential to become a major source of global electricity supply. But will politicians establish the policies required to make this potential a reality? The indefatigable conservationist David Brower would remind citizens, "Politicians are like weather vanes and our job is to make the wind blow." Nothing could be truer in the case of ensuring politicians make judicious policy and regulatory decisions

278

Response 562: See sections 3.13 and 3.17 for benefits from the MATL line, including some benefits that would extend beyond Montana's borders.

Response 563: Comment noted.

that seize opportunities presented by economically attractive, ecologically sustainable wind power.

Tom in this case the politicians have made the wind blow. The policy is in place the plan has been written.

Tom implement the plan, it is a good one. Well written and thorough.

Comment 564 Finally, it is not what power line will do to impact the environment it is what other options will do to the environment.

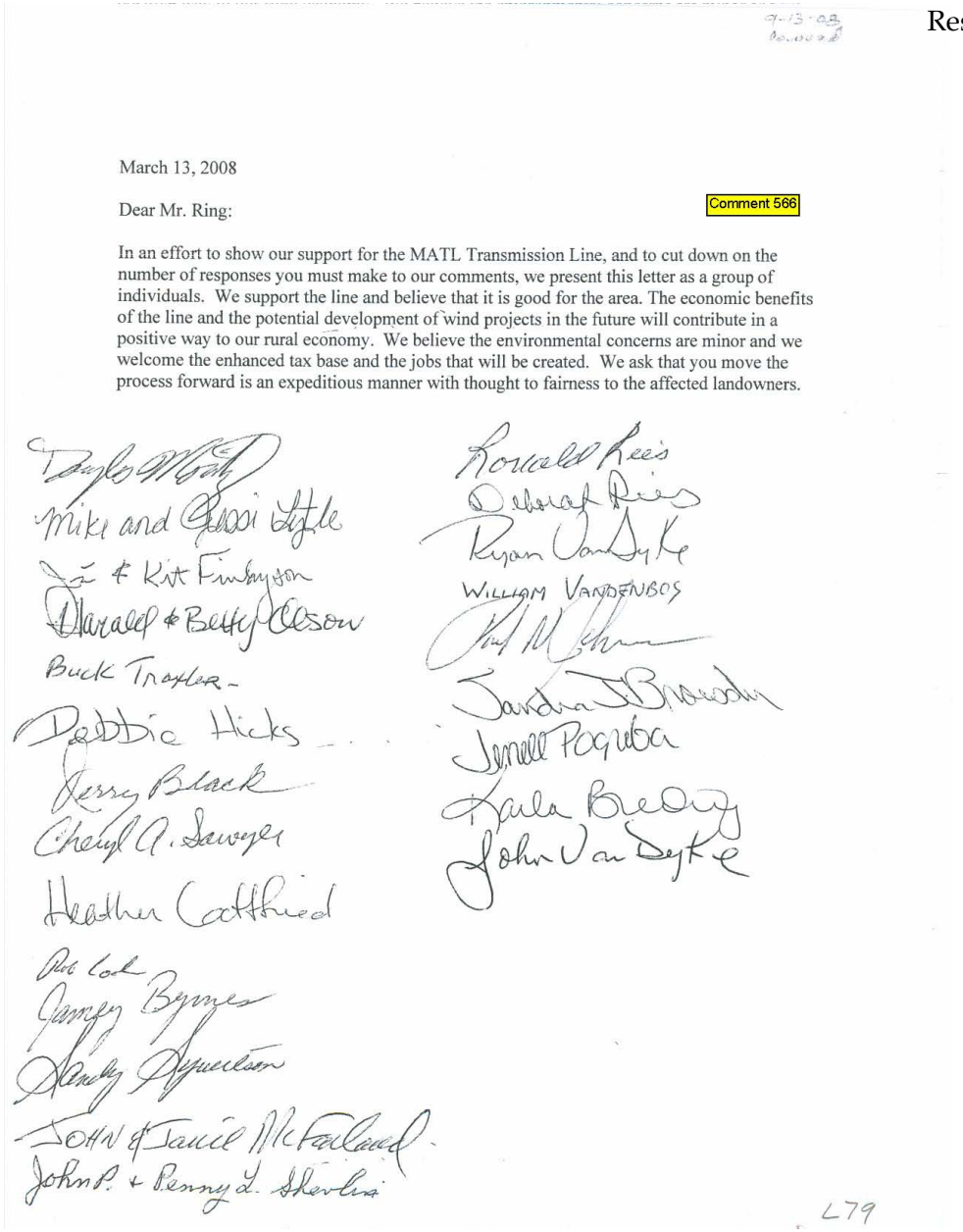
The Department of Environmental Quality has written a plan:

1. That helps satisfy the need for power
2. A plan that meets environmental tests
3. A plan that moves this region and this nation forward

Comment 565 Gentlemen do your duty implement this plan.

John Dallum

Response 564 and 565: Comments noted.



9-13-08
Received

March 13, 2008

Dear Mr. Ring:

Comment 566

In an effort to show our support for the MATL Transmission Line, and to cut down on the number of responses you must make to our comments, we present this letter as a group of individuals. We support the line and believe that it is good for the area. The economic benefits of the line and the potential development of wind projects in the future will contribute in a positive way to our rural economy. We believe the environmental concerns are minor and we welcome the enhanced tax base and the jobs that will be created. We ask that you move the process forward is an expeditious manner with thought to fairness to the affected landowners.

Mike and Jessi Hyde
Jo & Kit Finbyson
Harold & Betty Olson
Buck Traxler
Debbie Hicks
Jerry Black
Cheryl A. Sawyer
Heather Cathfried
Jamey Byrnes
John & Janice McFarland
John P. + Penny L. Skevlin
Ronald Rees
Deborah Rees
Ryan VanDyke
William VandenBos
Sandra J Brandy
Jewell Pogreba
Dale Brady
John VanDyke

L79

Response 566: Thank you for combining your comments. Comments noted.

Response 567: Comment noted.

March 13, 2008
MATL EIS Hearing

Comments:

Totally Support

Signature

March 13, 2008
MATL EIS Hearing

Comment 567

Comments:

Really support. Great for the economy in our area.

Signature

Shari Richter

582

Response 568 and 569: Comments noted.

Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

RECEIVED
MAR 13 2008
Dept. Environmental Quality
Env. Management Bureau

March 10, 2008

To Whom It May Concern:

I am writing in support of the Montana Alberta Tie Ltd. This electric transmission line is necessary to open up our area to Wind Energy.

We in Northern Montana are struggling with a dwindling economy and small towns like Sunburst are battling to keep our schools alive and well. This transmission line will make it possible for the planned Phase II Wind Farm to be built, resulting in numerous advantages to our local economy. Comment 568

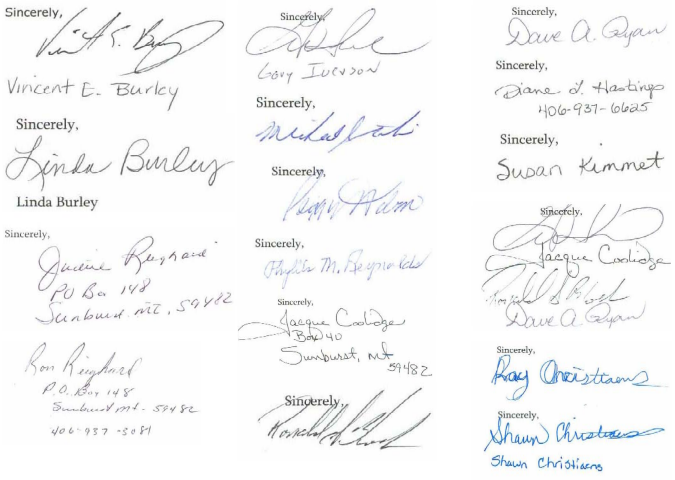
I feel that MATL will not negatively impact the environment. It will, however, have a huge positive impact on the area. Not only will we benefit directly from the jobs it creates and the tax base it will provide, but we will also see its benefits in our schools, and in our consumer spending. Comment 569

Please record my support of this project.

Sincerely,

Brian Roark

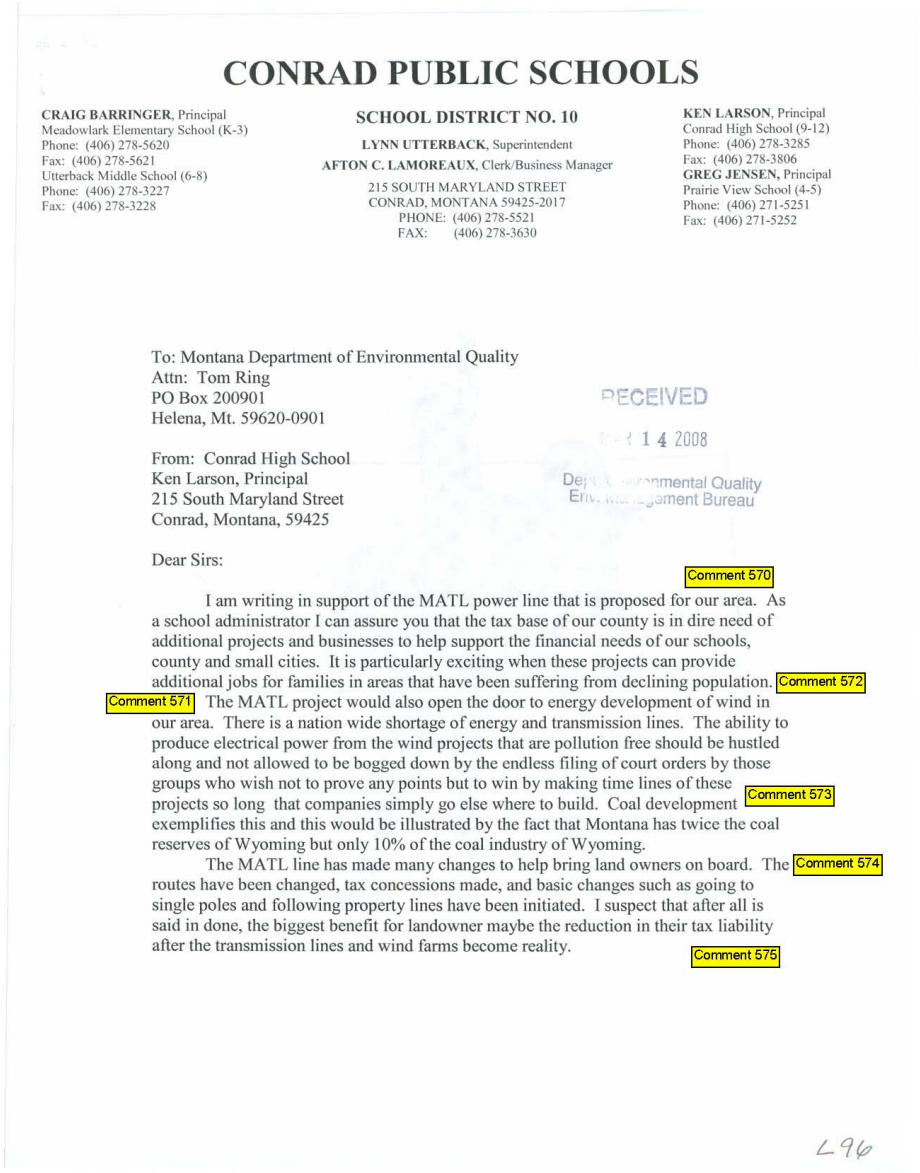
L85







Letters with the same content as in Brian Roark's letter on the preceding page (Comments 568 and 569) were also submitted by the signatories on this page.



CONRAD PUBLIC SCHOOLS

CRAIG BARRINGER, Principal
Meadowlark Elementary School (K-3)
Phone: (406) 278-5620
Fax: (406) 278-5621
Utterback Middle School (6-8)
Phone: (406) 278-3227
Fax: (406) 278-3228

SCHOOL DISTRICT NO. 10
LYNN UTTERBACK, Superintendent
AFTON C. LAMOREAUX, Clerk/Business Manager
215 SOUTH MARYLAND STREET
CONRAD, MONTANA 59425-2017
PHONE: (406) 278-5521
FAX: (406) 278-3630

KEN LARSON, Principal
Conrad High School (9-12)
Phone: (406) 278-3285
Fax: (406) 278-3806
GREG JENSEN, Principal
Prairie View School (4-5)
Phone: (406) 271-5251
Fax: (406) 271-5252

To: Montana Department of Environmental Quality
Attn: Tom Ring
PO Box 200901
Helena, Mt. 59620-0901

RECEIVED
APR 14 2008
Dept. of Environmental Quality
Environmental Management Bureau

From: Conrad High School
Ken Larson, Principal
215 South Maryland Street
Conrad, Montana, 59425

Dear Sirs:

Comment 570

I am writing in support of the MATL power line that is proposed for our area. As a school administrator I can assure you that the tax base of our county is in dire need of additional projects and businesses to help support the financial needs of our schools, county and small cities. It is particularly exciting when these projects can provide additional jobs for families in areas that have been suffering from declining population. Comment 572

Comment 571 The MATL project would also open the door to energy development of wind in our area. There is a nation wide shortage of energy and transmission lines. The ability to produce electrical power from the wind projects that are pollution free should be hustled along and not allowed to be bogged down by the endless filing of court orders by those groups who wish not to prove any points but to win by making time lines of these projects so long that companies simply go else where to build. Coal development Comment 573 exemplifies this and this would be illustrated by the fact that Montana has twice the coal reserves of Wyoming but only 10% of the coal industry of Wyoming.

The MATL line has made many changes to help bring land owners on board. The Comment 574 routes have been changed, tax concessions made, and basic changes such as going to single poles and following property lines have been initiated. I suspect that after all is said in done, the biggest benefit for landowner maybe the reduction in their tax liability after the transmission lines and wind farms become reality.

Comment 575

L96

Responses 570 to 575: Comments noted.

I would hope that we can reasonably pass "good" projects such as the MATL line through our maze of regulations without undue delays or hardships. I would believe that another "Berkley Pit" project could be recognized and stopped without years of study. Please note my support and the good that will come from allowing this project in our area in terms of economic development and growth in our community. Thank you.

Sincerely,

Amy J Krause
Conrad Public Schools

Best regards,

Ken Larson, Principal
Conrad High School

Sincerely,

Phil Springer, Science teacher
Conrad Public Schools

Best regards,

Lynn Utterback, Superintendent
Conrad Public Schools

Ring, Tom

From: mikegolf@infowest.com
Posted At: Saturday, March 15, 2008 7:01 AM
Conversation: MATL
Posted To: MATL

Subject: MATL

Comment 576

I am a home owner in Shelby Montana. I feel that this project would help this small community greatly. I support the proposed Montana Alberta Transmission Line and look forward to hearning very soon that a Presidential Permit has been issued for the project. I urge the Montana Department of Environmental Quality and Bureau of Land management to issue the need certificates of compliance and right of ways as required. Thank you for the opportunity to express my support of this project.

Sincerly

Michael P Smith

Shelby Montana

24

L110

Response 576: Comment noted.

Ring, Tom

From: Doug [dcbanka@earthlink.net]
Posted At: Saturday, March 15, 2008 6:47 PM
Conversation: EIS comments
Posted To: MATL

Subject: EIS comments

Mr. Greg Hallsten
Mr. Tom Ring
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

March 13, 2008

Sirs,

This is a follow up letter concerning the MATL (Montana Alberta Tie Ltd.) power line. Again I want to reiterate that this is not about the line itself but the proposed direction of the line (diagonal) and the use of H-structures instead of the preferred mono pole design.

Comment 577

In the Great Falls and Conrad meetings it was brought up several times that everyone should sacrifice and **"take one for the team"**. I do believe that with the total number of poles and power lines coupled with the pipelines etc. I have done my share of **"Taking One for the Team"**. Therefore if it is a team effort then EVERYONE should share in the costs and not just a few burden the entire costs of having to farm around a diagonal direction power line. In the next paragraph it will state as the number of issues that I have to deal with on a yearly basis. MATL needs to address the issue of a straight line format only. I should not be saddled with a diagonal direction because of the funding problems that MATL has with making the line a few miles longer. It has been brought to my attention that the Northern portion of the line is only on a straight line format. We are asking for the same consideration that our Northern neighbors have been afforded.

Comment 578

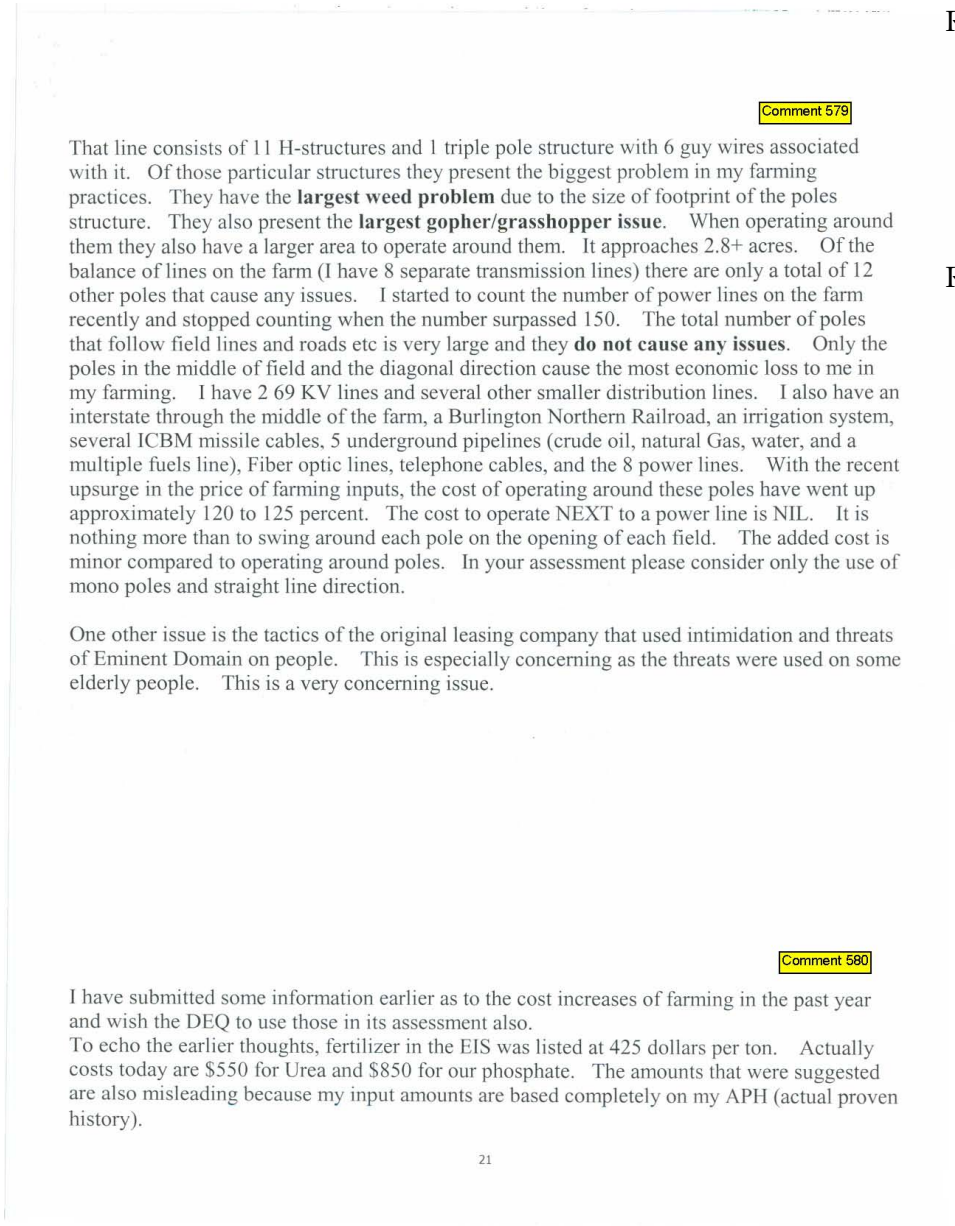
As in my previous letter I wish to state that I have an existing 230 kV line cross the property. It consists of 30 + mono poles and of those only 2 of the poles presents any type of issues. The only issues they present are because of the location in the middle of fields. To operate around one of these poles presents an additional 2.4 acres of added input costs. I have also a 115 KV line that cuts a diagonal across the property.

20

2111

Response 577: See the discussion of Economic Issues and Line Issues in the Consolidated Responses section for related information.

Response 578: See the discussion of Farming Issues in the Consolidated Responses section.



Comment 579

That line consists of 11 H-structures and 1 triple pole structure with 6 guy wires associated with it. Of those particular structures they present the biggest problem in my farming practices. They have the **largest weed problem** due to the size of footprint of the poles structure. They also present the **largest gopher/grasshopper issue**. When operating around them they also have a larger area to operate around them. It approaches 2.8+ acres. Of the balance of lines on the farm (I have 8 separate transmission lines) there are only a total of 12 other poles that cause any issues. I started to count the number of power lines on the farm recently and stopped counting when the number surpassed 150. The total number of poles that follow field lines and roads etc is very large and they **do not cause any issues**. Only the poles in the middle of field and the diagonal direction cause the most economic loss to me in my farming. I have 2 69 KV lines and several other smaller distribution lines. I also have an interstate through the middle of the farm, a Burlington Northern Railroad, an irrigation system, several ICBM missile cables, 5 underground pipelines (crude oil, natural Gas, water, and a multiple fuels line), Fiber optic lines, telephone cables, and the 8 power lines. With the recent upsurge in the price of farming inputs, the cost of operating around these poles have went up approximately 120 to 125 percent. The cost to operate NEXT to a power line is NIL. It is nothing more than to swing around each pole on the opening of each field. The added cost is minor compared to operating around poles. In your assessment please consider only the use of mono poles and straight line direction.

One other issue is the tactics of the original leasing company that used intimidation and threats of Eminent Domain on people. This is especially concerning as the threats were used on some elderly people. This is a very concerning issue.

Comment 580

I have submitted some information earlier as to the cost increases of farming in the past year and wish the DEQ to use those in its assessment also.
To echo the earlier thoughts, fertilizer in the EIS was listed at 425 dollars per ton. Actually costs today are $550 for Urea and $850 for our phosphate. The amounts that were suggested are also misleading because my input amounts are based completely on my APH (actual proven history).

21

Response 579: Your comments regarding pole placement, weeds, gophers, and grasshoppers are noted. The agencies also note your comment indicating that pole placement at the edge of fields reduces interference with farming activities. Also see the discussions of Farming Issues and Legal and Regulatory Issues in the Consolidated Responses section.

Response 580: Thank you for submitting more information on farm input costs. The agencies updated the analysis of farming costs in Section 3.13.2. See the discussion of Farming Issues in the Consolidated Responses section.

Then the farm ground is analyzed for nutrient content. The amounts are then calculated based on a projection of APH and existing nutrients in the soil.

A bushel of wheat takes approximately 3 lbs of nitrogen to be produced. Therefore, a proven history of 50 bushels per acre needs approximately 150 lbs of nitrogen available for the plant. An APH of 65 would then need 195 lbs of nitrogen. So for the EIS to carte-blanc use 60 units of nitrogen is alchemy at best. Nitrogen is much **too expensive to recreationally** apply without a proper justification as to the needs of the soil. The amounts of phosphates is a bit different and my soil uses between 50 to 75 lbs of phosphate fertilizer per acre. That has been very historical on my farm and has not changed in 20 years. With the costs associated with farming there is not such a thing as random averages. Round-up costs have soared from 19 to 21 dollars per gallon to 50 to 55 dollars per gallon. The Monsanto people have informed dealers that we should expect a 3 dollar per gallon per month increase in price.

Comment 581

I am also concerned with the over spraying around poles and over fertilizing around poles if that will ever cause or create any ground water issues. Almost all of the chemicals I use do deteriorate very quickly but not all deteriorate rapidly. Will those chemicals stay in the soil and prevent grain germination and grain growth over time.

Comment 582

Farming is a very dangerous profession. Please do not allow it to become more dangerous with the addition of a diagonal power line.

Comment 583

My last comment is to thank the Department of Energy and the Department of Environmental Quality for the massive amount of work that they encumbered in this issue. A special thanks to Greg Hallsten and Tom Ring and the rest of the staff at DEQ. Your work has been appreciated.

Sincerely,

22

Response 581: Herbicides and other pesticides that deteriorate rapidly should not affect groundwater quality or grain germination and growth over time. As the commenter notes, most of the pesticides used by farmers are in this category. For more persistent pesticides and for fertilizer nutrients, the potential for effects would vary with the chemical and the farming method. Usually, soil moisture will soak only to about 4 feet in dryland and pivot and wheel line irrigated fields, and generally it will not reach more than about 6 feet even in flood irrigated fields. Thus, it is unlikely that any of these products would get into ground water. However, on either dryland or irrigated fields, excessive application of fertilizer could adversely affect surface water quality by increasing nutrient runoff that can promote excessive growth of algae and other aquatic plants. Excess fertilizer nutrients that reached groundwater below irrigated fields could discharge to springs or seeps that enter surface streams, also adversely affecting surface water. With or without a transmission line, farmers should monitor their fertilizer and pesticide use to avoid overloading (Technical memorandum from Shane A Bofto, Engineer, HydroSolutions, Inc. to Tom Ring, DEQ, dated July 17, 2008).

Response 582: Although MATL proposes to raise conductor height, farmers and aerial sprayers would have to exercise caution around the transmission line. Also see the discussion of Safety Issues in the Consolidated Responses section.

Response 583: Comment noted.

March 11, 2008

Tom Ring
Environmental Sciences Specialist
Montana DEQ
Box 200901
Helena, MT 59620-0901

RECEIVED
MAR 13 2008
Dept. Environmental Quality
Env. Management Bureau

Dear Tom:

Comment 581

This letter is in response to the Montana Alberta Tie line. I work at Stockman Bank in Conrad, and as a business man and banker I would like to state my support for the transmission line. We definitely need the economic benefits and tax base that it will provide for our community. I would simply echo the comments from others on how it will help maintain our schools and labor force.

Comment 582

I also have a specific interest in the line as it will potentially cross my land northwest of Conrad. It appears that Alternative # 3 would cross my land in section 25, Township 29 North, Range 4 West.

My concern is that it appears that it dissects an irrigated hay field that I have an irrigation pivot on. I am hoping that we can negotiate the placement of poles so that they are not in a position that will prevent me from operating my irrigation system. If this alternative is not chosen then obviously this would not be an issue. Frankly, I have a hard time discerning exactly from the maps where it will be. The maps get to grainy when I blow them up to be sure.

If it were possible I would appreciate a little clearer map of the alternative that comes through the above mentioned land description.

Again, I would like to voice my support for the transmission line in general.

Thank You,

Dan Majerus

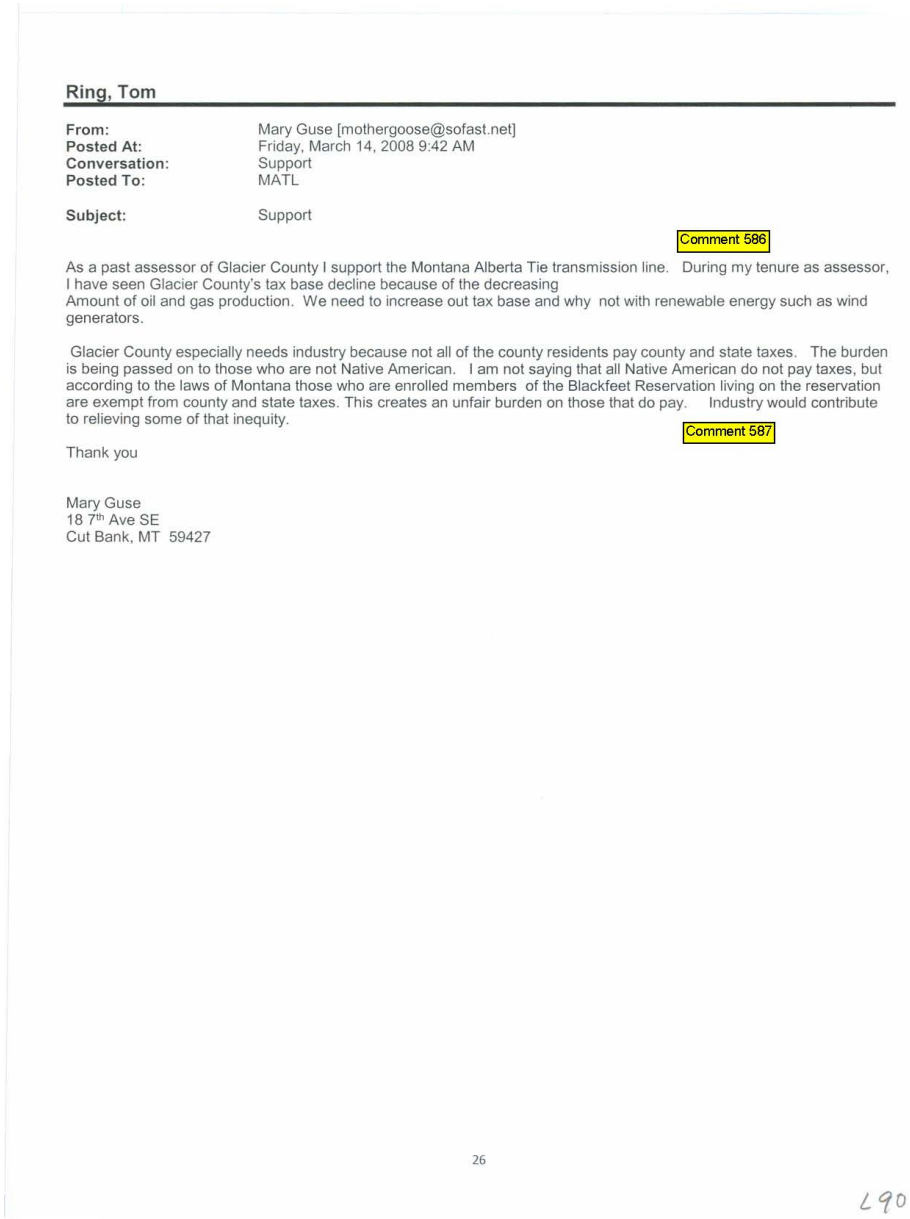
Dan Majerus
Box 843
Conrad, MT 59425
Work phone 278-8200
Home phone 278-3434

Email address: dmajerus@stockmanbank.com

L89

Response 584: Comment noted.

Response 585: A map of the area in question was sent to Mr. Majerus by e-mail on April 4, 2008. Alternative 3 does dissect the center pivot in that section. Also see the discussion of Farming Issues in the Consolidated Responses section.



Ring, Tom

From: Mary Guse [mothergoose@sofast.net]
Posted At: Friday, March 14, 2008 9:42 AM
Conversation: Support
Posted To: MATL

Subject: Support

Comment 586

As a past assessor of Glacier County I support the Montana Alberta Tie transmission line. During my tenure as assessor, I have seen Glacier County's tax base decline because of the decreasing
Amount of oil and gas production. We need to increase out tax base and why not with renewable energy such as wind generators.

Glacier County especially needs industry because not all of the county residents pay county and state taxes. The burden is being passed on to those who are not Native American. I am not saying that all Native American do not pay taxes, but according to the laws of Montana those who are enrolled members of the Blackfeet Reservation living on the reservation are exempt from county and state taxes. This creates an unfair burden on those that do pay. Industry would contribute to relieving some of that inequity.

Comment 587

Thank you

Mary Guse
18 7th Ave SE
Cut Bank, MT 59427

26

L90

Response 586: See the discussion of Socioeconomic Issues in the Consolidated Responses section.

Response 587: The topic of property taxation for Native Americans living on the Blackfeet Reservation is beyond the scope of this EIS. Potential impacts of the proposed project on property tax revenues and other socioeconomic conditions are discussed in Section 3.13.

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Reston, VA 20192

In Reply Refer To:
Mail Stop 423
ER 08/161

March 14, 2008

Mr. Tom Ring
Environmental Sciences Specialist
Bureau of Land Management
PO Box 200901
Helena, MT 59620-0901

Subject: Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line, Cascade, Teton, Chouteau, Pondera, Toole, and Glacier Counties, Montana

Dear Mr. Ring:

As requested by the U.S. Department of the Interior, Office of Environmental Policy and Compliance, in their correspondence of February 12, 2008, the U.S. Geological Survey (USGS) has reviewed the subject draft environmental impact statement (DEIS) and offers the following comment.

SPECIFIC COMMENT

Section 3.6.1 Analysis Methods, page 3-66, last paragraph, first sentence Comment 588

There is a typographical error in the Internet link provided for USGS flood-frequency and basin-characteristic data for Montana. The correct Internet link is:
http://mt.water.usgs.gov/freq?page_type=site&site_no=06108000

Thank you for the opportunity to review and comment on this DEIS. If you have any questions concerning our comment, please contact Lloyd Woosley, Chief of the USGS Environmental Affairs Program, at (703) 648-5028 or at lwoosley@usgs.gov.

Sincerely,

/Signed/
James F. Devine
Senior Advisor for Science Applications

Copy to: Office of Environmental Policy and Compliance

L92

Response 588: Thank you for pointing out the error. The correction is included in Section 3.6.1 in the EIS.

March 16, 2008

Mr. Tom Ring,
Montana DEQ

Please accept these comments on the Federal Draft EIS and State of Montana Supplemental Draft EIS for the Montana Alberta Tie Ltd. (MATL) Transmission line.

Comment 589 The proposed energy development is unnecessary and inappropriate for this area. This sparsely populated area of Montana does not need such a large, expensive centralized energy system. Montana does not need such a system. Montana already makes more electricity than it consumes. There is no reason for Montana to supply other regions with power. This only fuels excessive growth in other areas that are beyond the resources of the local area. It also allows other areas to not face the environmental impacts of their own lifestyles. Montana should not subsidize other people's energy consumption.

Comment 590 This project will have a very large and negative impact on Montana's environment. I am opposed to this level of landscape alteration, including infrastructure, visual deterioration and noise pollution. The financial expense of this project would be better used to develop local, sustainable energy technologies and systems for this remote area of Montana.

Comment 591 We need to move toward small-scale renewable energy developments that are in-sync with the communities and work well with the landscapes. The relatively small and sparse population of this area is perfect for small-scale local energy development. This area should not by supplying energy to other regions. It makes no sense. This amounts to subsidizing over consumptive lifestyles onto rural communities.

Comment 592 We need to reduce out total energy consumption and keep production of the energy as local as possible and under public control. This proposal does the opposite, creating a corporate owned transnational energy grid. It is bad idea. I strongly support the "no action alternative." The time, money and energy would be better invested into research and development of local, renewable energy sources.

David Mildrexler
PO Box 7634
Missoula, MT 59807

L112

Response 589: Your comments are noted.

Response 590: Local, sustainable energy technologies can still be developed in this part of the state. However, their development would not satisfy the project need.

Response 591 and 592: Comments noted.

Ring, Tom

From: Michael [hihomike@peoplepc.com]
Posted At: Monday, March 17, 2008 1:14 PM
Conversation: powerline
Posted To: MATL

Subject: powerline

Dear Mr. Ring,

Comment 593

I AM WRITING TO YOU AGAIN IN RESPONSE TO THE EIS THAT WE AS LAND OWNERS RECENTLY RECEIVED IN THE MAIL. YOU DID IMPROVE ON SOME AREAS IN THIS DRAFT ,BUT YOU FAILED ONCE IN AGAIN ONLY TALKING WITH CERTAIN FARMERS IN THE AFFECTED AREA FROM THE POWERLINE CONSTRUCTION. MY FATHER AND I ARE CAUGHT IN THE MIDDLE OF THIS SITUATION , BECAUSE WE ARE NOT HUGE FARMERS . OUR FARM IS ALMOST AT THE 100 YEAR MARK FOR FAMILY OWNERSHIP AND WE HAVE HAD POWERLINES TO FIGHT WITH OR THE OLDER TELEPHONE LINES WHEN THEY WERE ABOVE GROUND TO DEAL WITH SINCE MY DAD STARTED FARMING. WE ARE NOT AGAINST PROGRESS OR THIS POWERLINE , BUT WE DON'T FEEL LIKE WE NEED ANOTHER POWERLINE CROSSING OUR PROPERTY WE HIGHLY RECOMMEND THAT THIS POWERLINE BE EITHER FATHER TO THE WEST SO THAT IT IS CLOSE TO THE SUPPOSEDLY WIND GENERATING FARMS THAT ARE RELIANT UPON THIS LINE BEING BUILT OR TO THE EAST ON PROPOSED ROUTE 3 WHICH ELIMINATES ANY DIAGONAL CROSSING ON OUR PROPERTY OR ANY OF THE NEIGHBORS. SO PLEASE TAKE INTO CONSIDERATION OUR SUGGESTIONS WHEN MAKING YOUR FINAL DECISION.

SINCERELY,
DONALD M. KOENIG
MICHAEL D. KOENIG
3/17/08

PeoplePC Online
A better way to Internet
http://www.peoplepc.com

18

L114

Response 593: Representatives of DEQ and MATL met with the Koenigs to discuss the possibility of a new local routing option to address the concerns raised in this comment. The Koenigs indicated they did not want the line crossing their property and did not want the agencies to consider additional alignments on their property.



March 13, 2008

RECEIVED
MAR 17 2008
Dept. Environmental Quality
Env. Management Bureau

Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

c/o. Tom Ring

Dear Mr. Ring,

Comment 594

Regarding the routing on the proposed 230KV transmission line, I would request (alternative 4) R5W be utilized. This routing is more of a direct approach with a straight line to the final required destination. At this time I would not desire the lines to cross my property due to the impact of wildlife in the area. I purchased the property as an investment with the intent to preserve the raw natural beauty of the land. I would rather the proposed placement not cross my property line.

Sincerely,

Kathy Cummings
KMC INC

L115

Response 594: Your comment on Alternative 4 is noted, however, the agencies note that the reference to R5W may be in error.

RECEIVED
MAR 17 2008
Dept. Environmental Quality
Env. Management Bureau

March 12, 2008

Mr. Tom King
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana
59620-0901

Comment 595

Dear Mr. King,
I am writing in response to the invitation to comment on the Draft Environmental Impact Statement for the Montana/Alberta Tie Transmission Line. I am chairperson of the Northern Rockies Medical Center in Cut Bank.

As a small rural medical facility, NRMC is impacted by the shift in population up or down and the economies of the area. We struggle to bring adequate health care to the citizens in our service area. I view the proposed electric transmission line as a positive step in bolstering the economy, which in turn will make it easier to provide better healthcare. Wind energy in my opinion is a "clean" industry that will not impact the environment negatively. I am in favor of the proposed project by Montana/Alberta Tie, Ltd.

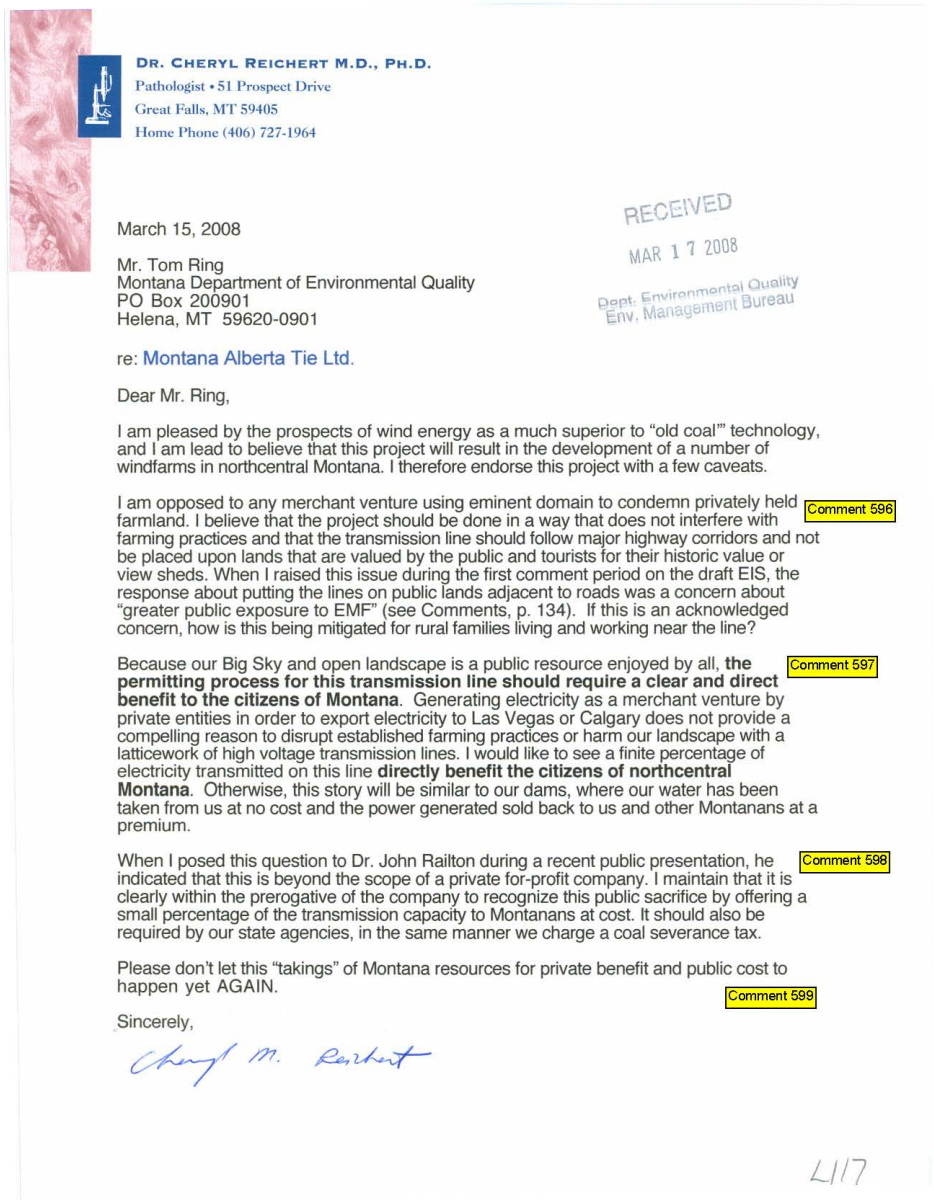
I appreciate the opportunity to express my opinion and speak in favor the transmission line. I look forward to hearing of the progress being made in obtaining the necessary permits and right-of-ways to complete the project.

Sincerely yours,

Rev. Gerald Ebelt

4116

Response 595: Comment noted.



DR. CHERYL REICHERT M.D., PH.D.
Pathologist • 51 Prospect Drive
Great Falls, MT 59405
Home Phone (406) 727-1964

RECEIVED
MAR 17 2008
Dept. Environmental Quality
Env. Management Bureau

March 15, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

re: Montana Alberta Tie Ltd.

Dear Mr. Ring,

I am pleased by the prospects of wind energy as a much superior to "old coal'" technology, and I am lead to believe that this project will result in the development of a number of windfarms in northcentral Montana. I therefore endorse this project with a few caveats.

I am opposed to any merchant venture using eminent domain to condemn privately held farmland. I believe that the project should be done in a way that does not interfere with farming practices and that the transmission line should follow major highway corridors and not be placed upon lands that are valued by the public and tourists for their historic value or view sheds. When I raised this issue during the first comment period on the draft EIS, the response about putting the lines on public lands adjacent to roads was a concern about "greater public exposure to EMF" (see Comments, p. 134). If this is an acknowledged concern, how is this being mitigated for rural families living and working near the line? Comment 596

Because our Big Sky and open landscape is a public resource enjoyed by all, **the permitting process for this transmission line should require a clear and direct benefit to the citizens of Montana**. Generating electricity as a merchant venture by private entities in order to export electricity to Las Vegas or Calgary does not provide a compelling reason to disrupt established farming practices or harm our landscape with a latticework of high voltage transmission lines. I would like to see a finite percentage of electricity transmitted on this line **directly benefit the citizens of northcentral Montana**. Otherwise, this story will be similar to our dams, where our water has been taken from us at no cost and the power generated sold back to us and other Montanans at a premium. Comment 597

When I posed this question to Dr. John Railton during a recent public presentation, he indicated that this is beyond the scope of a private for-profit company. I maintain that it is clearly within the prerogative of the company to recognize this public sacrifice by offering a small percentage of the transmission capacity to Montanans at cost. It should also be required by our state agencies, in the same manner we charge a coal severance tax. Comment 598

Please don't let this "takings" of Montana resources for private benefit and public cost to happen yet AGAIN. Comment 599

Sincerely,

Cheryl M. Reichert

L117

Response 596: See the discussion in the EIS, Section 3.4.2. Although no federal or state regulations are in effect specifying environmental limits on the strengths of magnetic fields from power lines, the agencies have worked to site the line so that it would not be in close proximity to residences. The agencies acknowledge that those people working in close proximity to the line would be exposed to elevated electromagnetic fields. In addition, MATL's policy is to minimize EMF exposure levels to the extent practicable. MATL would use a vertical optimized phasing orientation for the proposed line, where phases of the single circuit are offset to minimize the line's EMF strength. While additional research has occurred since 1999, the cover letter transmitting an exhaustive report about potential health implications of exposure to EMF still summarizes the state of science on this topic. (NIEHS REPORT 1992). An excerpt from this cover letter follows:

"The scientific evidence used in preparation of this report has undergone extensive scientific and public review. The entire process was open and transparent. Anyone who wanted "to have a say" was provided the opportunity.

"The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak. The strongest evidence for health effects comes from associations observed in human populations with two forms of cancer: childhood leukemia and chronic lymphocytic leukemia in occupationally exposed adults. While the support from individual studies is weak, the epidemiological studies demonstrate, for some methods of measuring exposure, a fairly consistent pattern of a small, increased risk with increasing exposure that is somewhat weaker for chronic lymphocytic leukemia than for childhood leukemia. In contrast, the mechanistic studies and the animal toxicology literature fail to demonstrate any consistent pattern across studies although sporadic findings of biological

effects have been reported. No indication of increased leukemias in experimental animals has been observed.

"The lack of connection between the human data and the experimental data (animal and mechanistic) severely complicates the interpretation of these results. The human data are in the "right" species, are tied to "real life" exposures and show some consistency that is difficult to ignore. This assessment is tempered by the observation that given the weak magnitude of these increased risks, some other factor or common source of error could explain these findings. However, no consistent explanation other than exposure to ELFEMF has been identified.

"Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings.

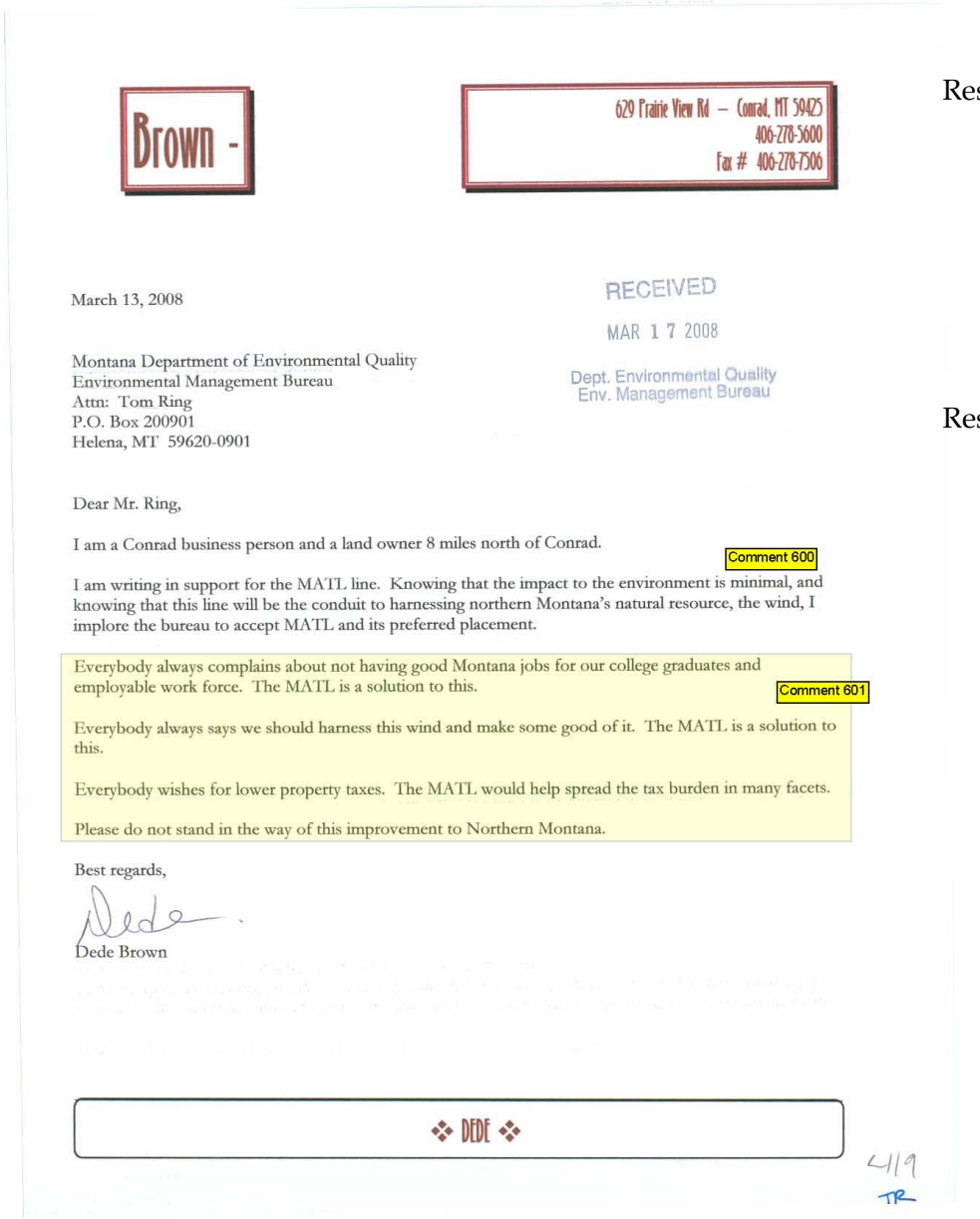
"The NIEHS concludes that ELF-EMF exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. In my opinion, the conclusion of this report is insufficient to warrant aggressive regulatory concern. However, because virtually everyone in the United States uses electricity and therefore is routinely exposed to ELF-EMF, passive regulatory action is warranted such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. The NIEHS does not believe that other cancers or noncancer health outcomes provide sufficient evidence of a risk to currently warrant concern.

"The interaction of humans with ELF-EMF is complicated and will undoubtedly continue to be an area of public concern. The EMF-RAPID Program successfully contributed to the scientific knowledge on ELF-EMF through its support of high quality, hypothesis-based research. While some questions were answered, others remain. Building upon the knowledge base developed under the EMF-RAPID Program, meritorious research on ELFEMF through carefully designed, hypothesis-driven studies should continue for areas warranting fundamental study including leukemia. Recent research in two areas, neurodegenerative diseases and cardiac diseases associated with heart rate variability, have identified some interesting and novel findings for which further study is ongoing. Advocacy groups have opposing views concerning the health effects of ELF-EMF. Some advocacy groups want complete exoneration and others want a more serious indictment. Our conclusions are prudent and consistent with the scientific data. I am satisfied with the report and believe it provides a pragmatic, scientifically-driven basis for any further regulatory review."

The alternatives developed by the agencies have avoided siting the line in close proximity to areas of concentrated human use such as homes, schools, and businesses, where humans would be exposed to EMF from the transmission line over prolonged periods. This approach has been termed "prudent avoidance". The agencies recognize that persons working in agricultural operations and travelers will be exposed to elevated EMF for short periods as they work and travel under and near the lines.

Response 597 and 598: Comments noted. The agencies do not have the authority to reserve transmission capacity for a particular use. Under regulations of the Federal Energy Regulatory Commission, MATL is required to provide open access to generators without special treatment for anyone. The benefits of the MATL line are discussed in Sections 3.13 and 3.17. Where the power flowing over MATL would be used is the decision of power generators, utilities, and other electricity buyers.

Response 599: Comment noted.



Brown -

629 Prairie View Rd – Conrad, MT 59425
406-278-5600
Fax # 406-278-7506

March 13, 2008

RECEIVED
MAR 17 2008
Dept. Environmental Quality
Env. Management Bureau

Montana Department of Environmental Quality
Environmental Management Bureau
Attn: Tom Ring
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring,

I am a Conrad business person and a land owner 8 miles north of Conrad.

Comment 600

I am writing in support for the MATL line. Knowing that the impact to the environment is minimal, and knowing that this line will be the conduit to harnessing northern Montana's natural resource, the wind, I implore the bureau to accept MATL and its preferred placement.

Everybody always complains about not having good Montana jobs for our college graduates and employable work force. The MATL is a solution to this.

Comment 601

Everybody always says we should harness this wind and make some good of it. The MATL is a solution to this.

Everybody wishes for lower property taxes. The MATL would help spread the tax burden in many facets.

Please do not stand in the way of this improvement to Northern Montana.

Best regards,

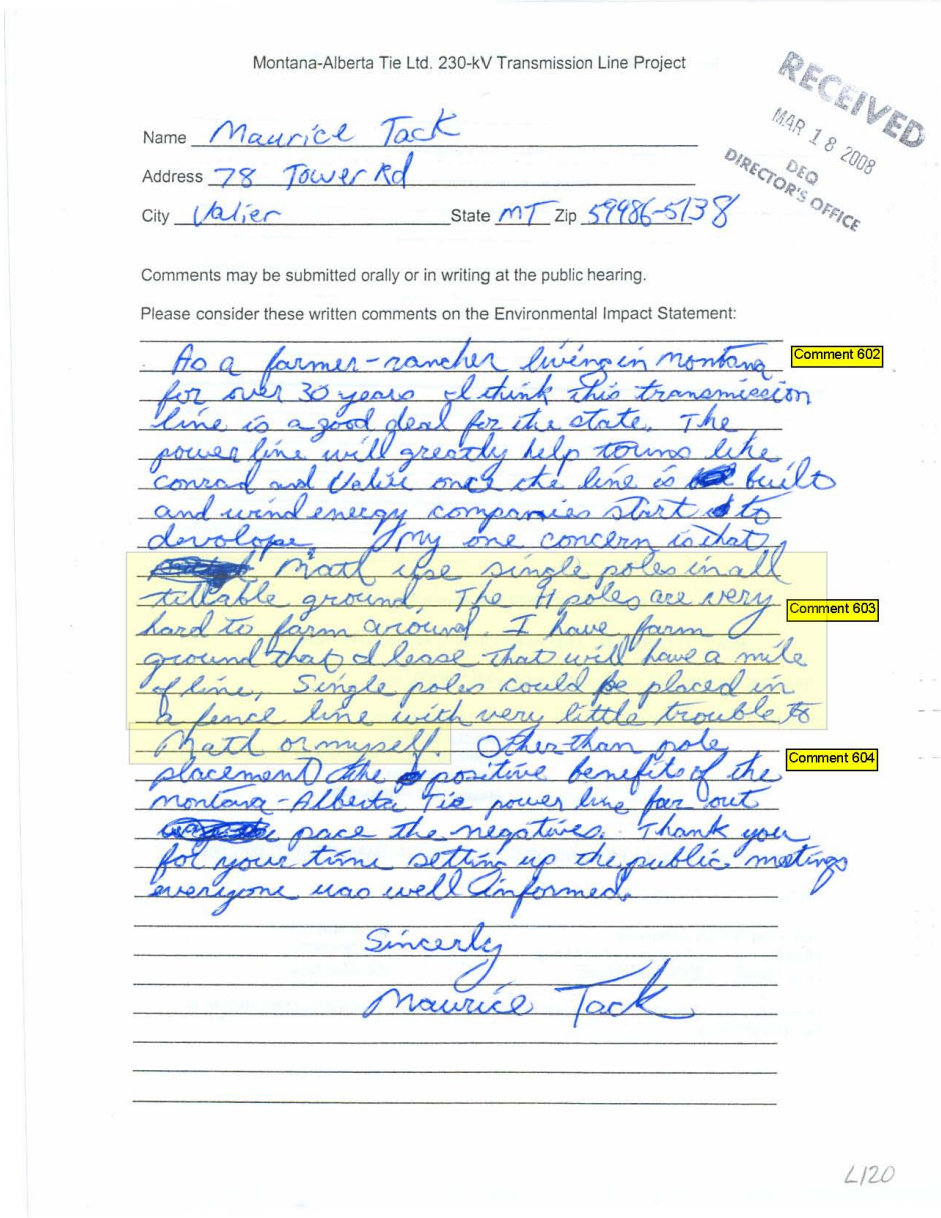
Dede Brown

❖ DEDE ❖

4/19
TR

Response 600: Comment noted. While the line could facilitate the development of wind resources and other generation facilities, it would be a merchant line and provide another transmission path to and from Montana. When the wind is not blowing or when wind generators are not fully exercising their agreements to transmit power over MATL's line, the proposed line could be available to other generators and power users on a short-term, non-firm basis.

Response 601: Comments are noted.



Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

RECEIVED
MAR 18 2008
DEQ
DIRECTOR'S OFFICE

Name Maurice Tack

Address 78 Tower Rd

City Valier State MT Zip 59486-5138

Comments may be submitted orally or in writing at the public hearing.

Please consider these written comments on the Environmental Impact Statement:

As a farmer-rancher living in Montana for over 30 years I think this transmission line is a good deal for the state. The power line will greatly help towns like Conrad and Valier once the line is built and wind energy companies start to developer. My one concern is that [redacted] Both use single poles in all tillable ground. The H poles are very hard to farm around. I have farm ground that I lease that will have a mile of line. Single poles could be placed in a fence line with very little trouble to Both or myself. Other than pole placement the positive benefits of the Montana-Alberta Tie power line far out pace the negatives. Thank you for your time setting up the public meetings everyone was well informed.

Sincerly

Maurice Tack

L120

Comment 602

Comment 603

Comment 604

Response 602 to 604: Comments noted. See the discussion of Farming Issues in the Consolidated Responses section.

Ring, Tom

From: Jim Anderson [wings@3rivers.net]
Posted At: Wednesday, March 19, 2008 8:44 AM
Conversation: Teton County
Posted To: MATL

Subject: Teton County

Good Morning,

Comment 605

I am in favor of the MATL line coming thru Teton County. The tax revenue is greatly needed. Any wind generation in this area could tap into this line.

Thank you,

Jim Anderson
Wings and Wild Things
Choteau, MT

17

L121

Response 605: Comment noted.

Ring, Tom

From: Sean Pahut [srae.pahut@3rivers.net]
Posted At: Wednesday, March 19, 2008 9:50 PM
Conversation: Power Line
Posted To: MATL

Subject: Power Line

To whom it may concern;

Comment 606

I am writing this letter of support for the Montana-Alberta Tie Power Line. The Montana Hi-Line has long been economically barren with the persistent drought and the continued migration of people out of our communities. This power line gives our area an economic opportunity that has not been seen for a long time. I agree with the people who are concerned about the land owners and their interests should be addressed as much as possible, however, nothing is 100% perfect and I believe that the company has attempted to rectify any concerns that has been brought to it's attention. Comment 608

A few days ago I saw a picture of Governor Schwitzer in Butte welcoming a German company who will be building windmills in Butte. I would hate to see our state government turn away an opportunity that will kickstart wind generation along the Rocky Mountain Front considering our State is portraying itself as a leader in green energy. Comment 608

Please approve this powerline and it's current route so that the project can start immediately without any additional cost to the company. I believe that the long term benefits outweigh any short term pains that some people may/may not experience.

Comment 609

Sincerely,

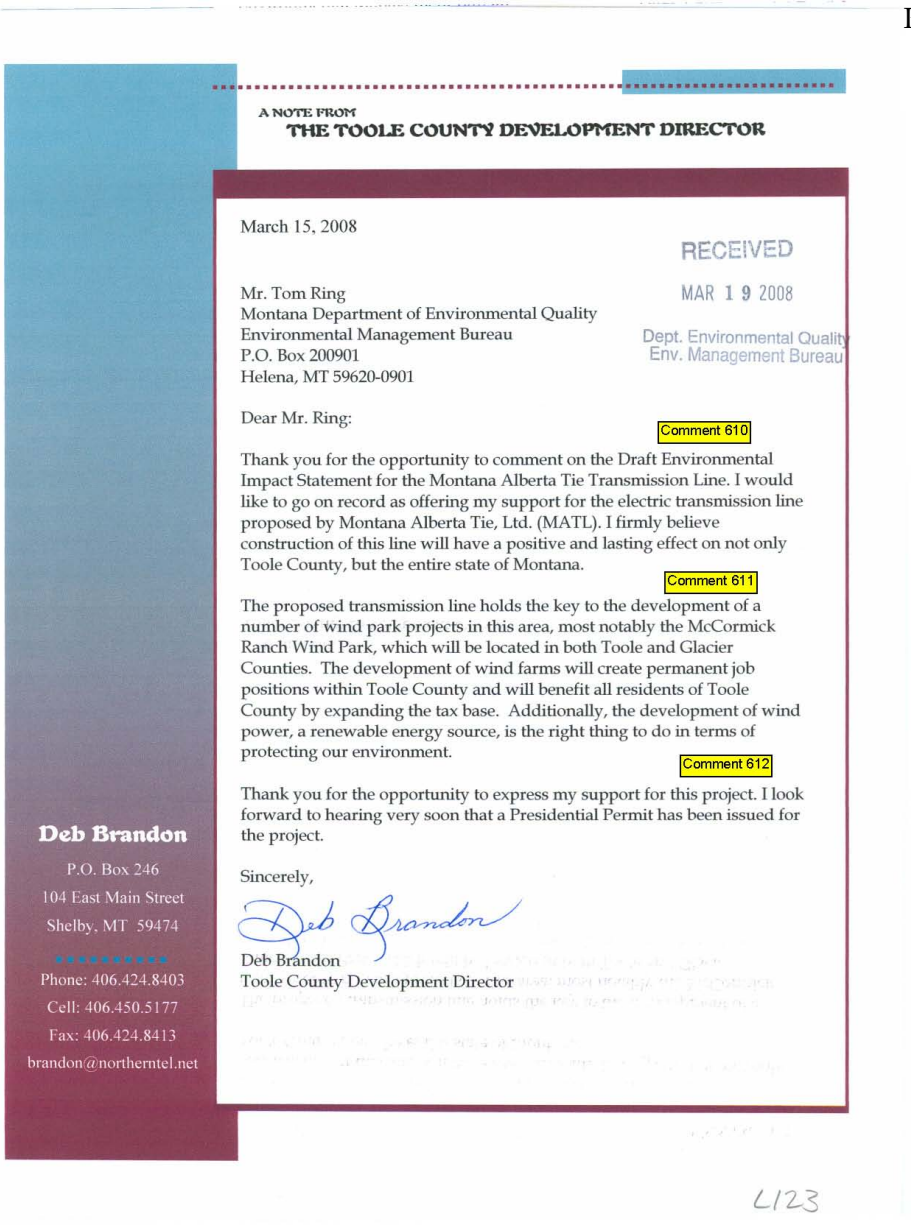
Sean Pahut
past president Shelby Chamber of Commerce
Shelby, MT

16

L122

Response 606 to 609: Comments noted.

Response 610 to 612: Comments noted.



A NOTE FROM
THE TOOLE COUNTY DEVELOPMENT DIRECTOR

March 15, 2008

RECEIVED
MAR 19 2008
Dept. Environmental Quality
Env. Management Bureau

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 610

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Montana Alberta Tie Transmission Line. I would like to go on record as offering my support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). I firmly believe construction of this line will have a positive and lasting effect on not only Toole County, but the entire state of Montana.

Comment 611

The proposed transmission line holds the key to the development of a number of wind park projects in this area, most notably the McCormick Ranch Wind Park, which will be located in both Toole and Glacier Counties. The development of wind farms will create permanent job positions within Toole County and will benefit all residents of Toole County by expanding the tax base. Additionally, the development of wind power, a renewable energy source, is the right thing to do in terms of protecting our environment.

Comment 612

Thank you for the opportunity to express my support for this project. I look forward to hearing very soon that a Presidential Permit has been issued for the project.

Sincerely,

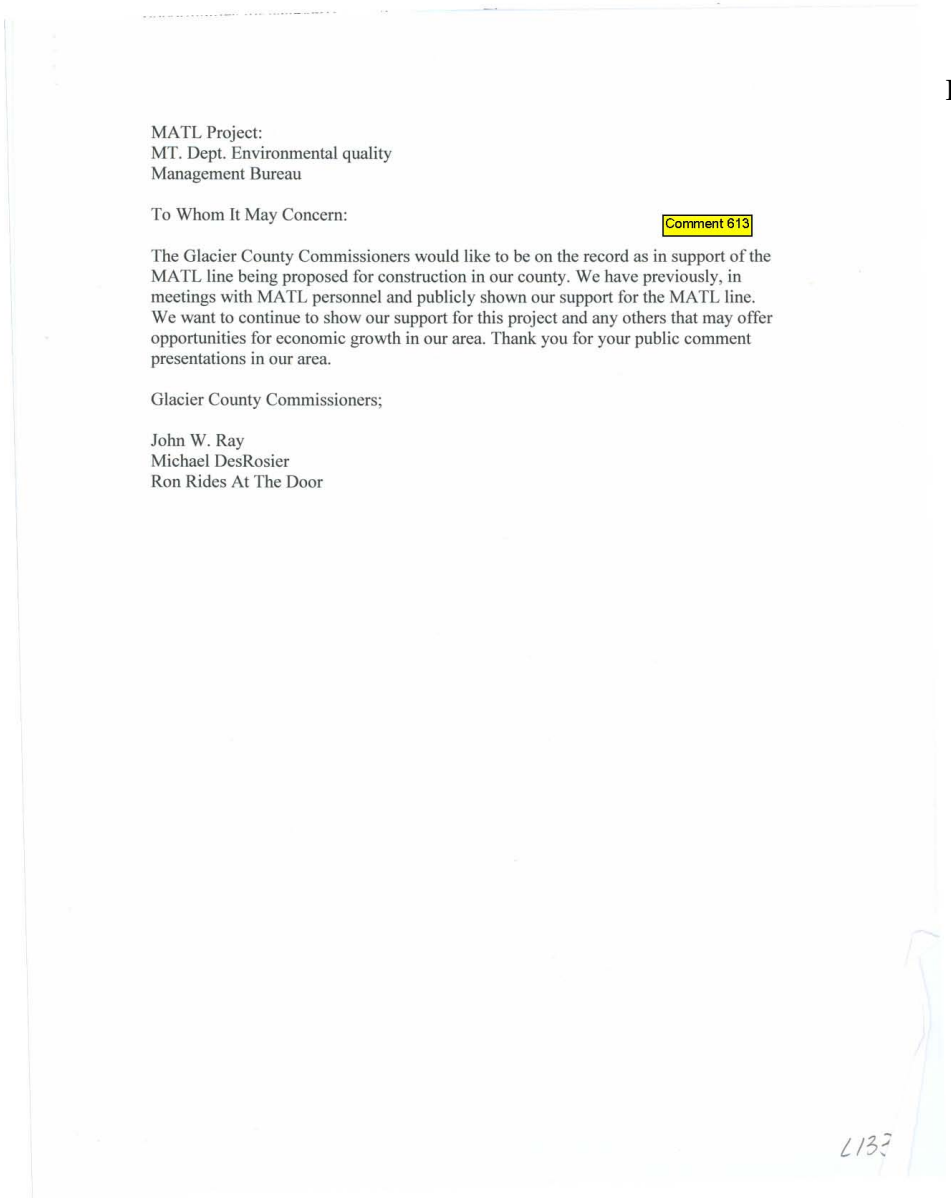
Deb Brandon

Deb Brandon
Toole County Development Director

Deb Brandon
P.O. Box 246
104 East Main Street
Shelby, MT 59474

Phone: 406.424.8403
Cell: 406.450.5177
Fax: 406.424.8413
brandon@northerntel.net

L123



MATL Project:
MT. Dept. Environmental quality
Management Bureau

To Whom It May Concern:

Comment 613

The Glacier County Commissioners would like to be on the record as in support of the MATL line being proposed for construction in our county. We have previously, in meetings with MATL personnel and publicly shown our support for the MATL line. We want to continue to show our support for this project and any others that may offer opportunities for economic growth in our area. Thank you for your public comment presentations in our area.

Glacier County Commissioners;

John W. Ray
Michael DesRosier
Ron Rides At The Door

L137

Response 613: Comment noted.

Ring, Tom

From: Mary Anderson [mary@3rivers.net]
Posted At: Thursday, March 20, 2008 1:46 PM
Conversation: MATL line
Posted To: MATL

Subject: MATL line

Hi there,

Comment 614

I am in favor of the MATL line coming thru Teton County. I believe this is good for our local economy and for the state.

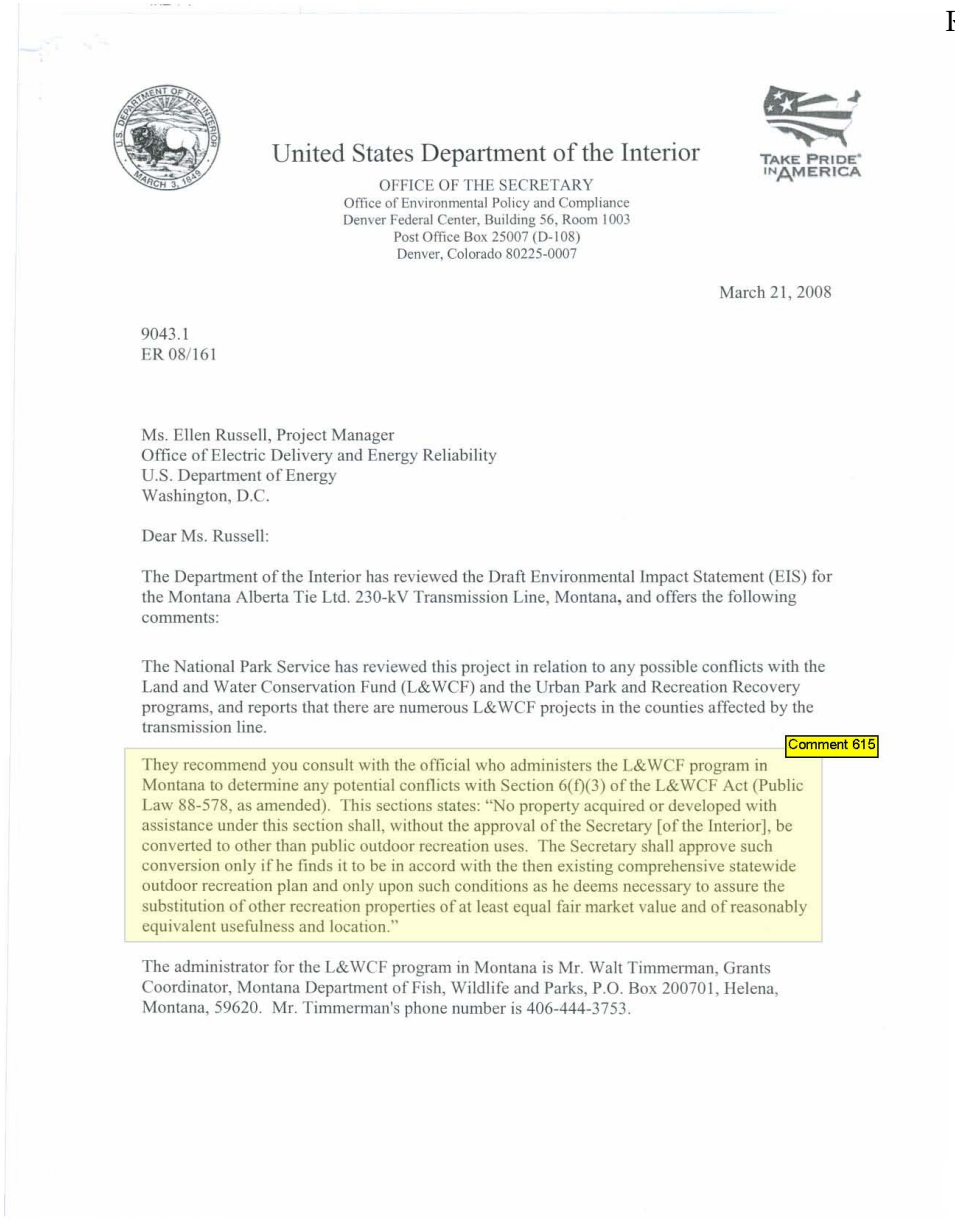
Thank you,

Mary Anderson
Choteau, MT

14

L134

Response 614: Comment noted.



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
Post Office Box 25007 (D-108)
Denver, Colorado 80225-0007

March 21, 2008

9043.1
ER 08/161

Ms. Ellen Russell, Project Manager
Office of Electric Delivery and Energy Reliability
U.S. Department of Energy
Washington, D.C.

Dear Ms. Russell:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (EIS) for the Montana Alberta Tie Ltd. 230-kV Transmission Line, Montana, and offers the following comments:

The National Park Service has reviewed this project in relation to any possible conflicts with the Land and Water Conservation Fund (L&WCF) and the Urban Park and Recreation Recovery programs, and reports that there are numerous L&WCF projects in the counties affected by the transmission line.

Comment 615

They recommend you consult with the official who administers the L&WCF program in Montana to determine any potential conflicts with Section 6(f)(3) of the L&WCF Act (Public Law 88-578, as amended). This sections states: "No property acquired or developed with assistance under this section shall, without the approval of the Secretary [of the Interior], be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location."

The administrator for the L&WCF program in Montana is Mr. Walt Timmerman, Grants Coordinator, Montana Department of Fish, Wildlife and Parks, P.O. Box 200701, Helena, Montana, 59620. Mr. Timmerman's phone number is 406-444-3753.

Response 615: Montana Fish, Wildlife and Parks did not express any concerns regarding the Land &Water Conservation Fund program in its review of the EIS. Further review found that none of these sites would be crossed.

Ms. Ellen Russell 2

If you have any questions regarding the L&WCF projects that could be impacted, please contact Terree Klanecky, Outdoor Recreation Planner, in the National Park Service Midwest Regional Office at 402.221.1556.

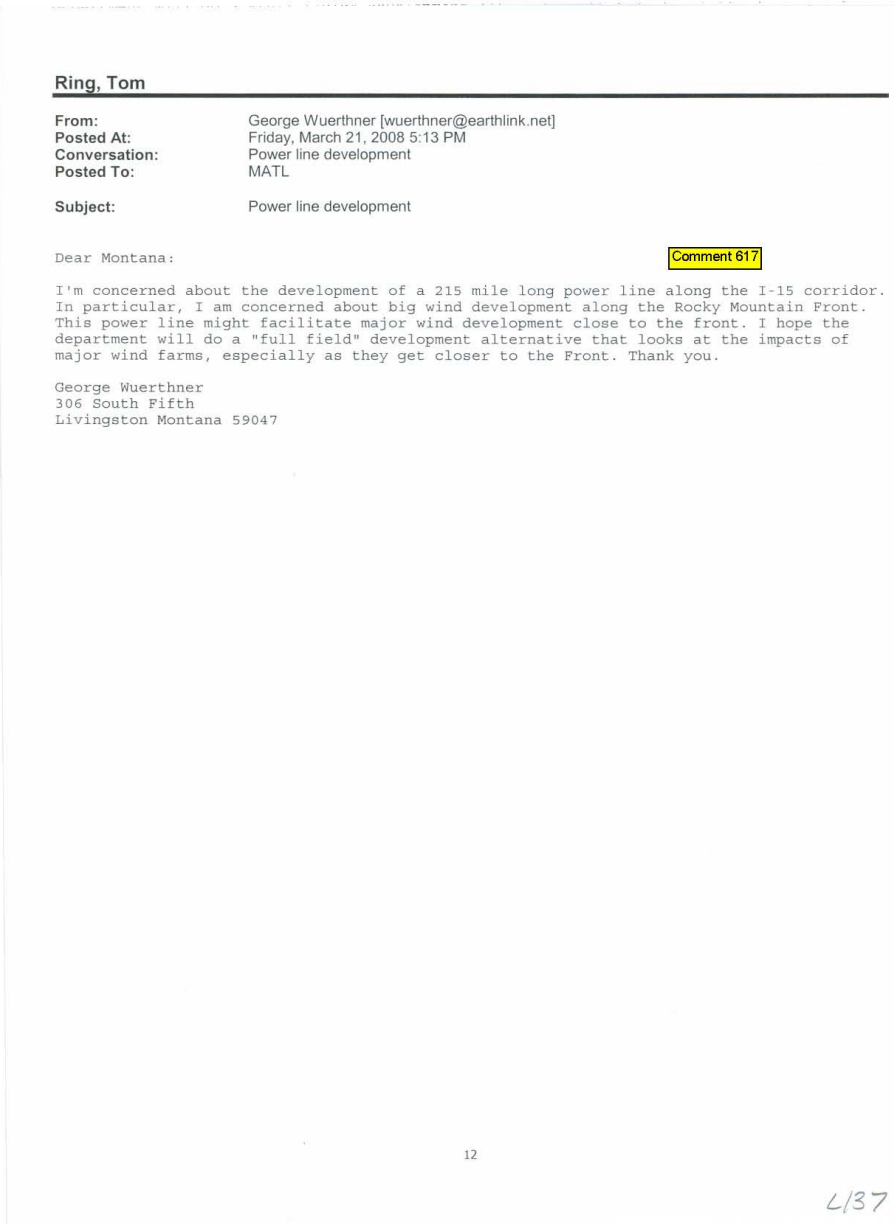
In addition, under separate cover the U.S. Geological Survey has provided a typographical correction to their Internet link on page 3-66. Comment 616

Sincerely,

Robert F. Stewart
Regional Environmental Officer

cc: Tom Ring, Montana DEQ

Response 616: Thank you for pointing out the error. The correction is included in Section 3.6.1.



Ring, Tom

From: George Wuerthner [wuerthner@earthlink.net]
Posted At: Friday, March 21, 2008 5:13 PM
Conversation: Power line development
Posted To: MATL

Subject: Power line development

Dear Montana:

Comment 617

I'm concerned about the development of a 215 mile long power line along the I-15 corridor. In particular, I am concerned about big wind development along the Rocky Mountain Front. This power line might facilitate major wind development close to the front. I hope the department will do a "full field" development alternative that looks at the impacts of major wind farms, especially as they get closer to the Front. Thank you.

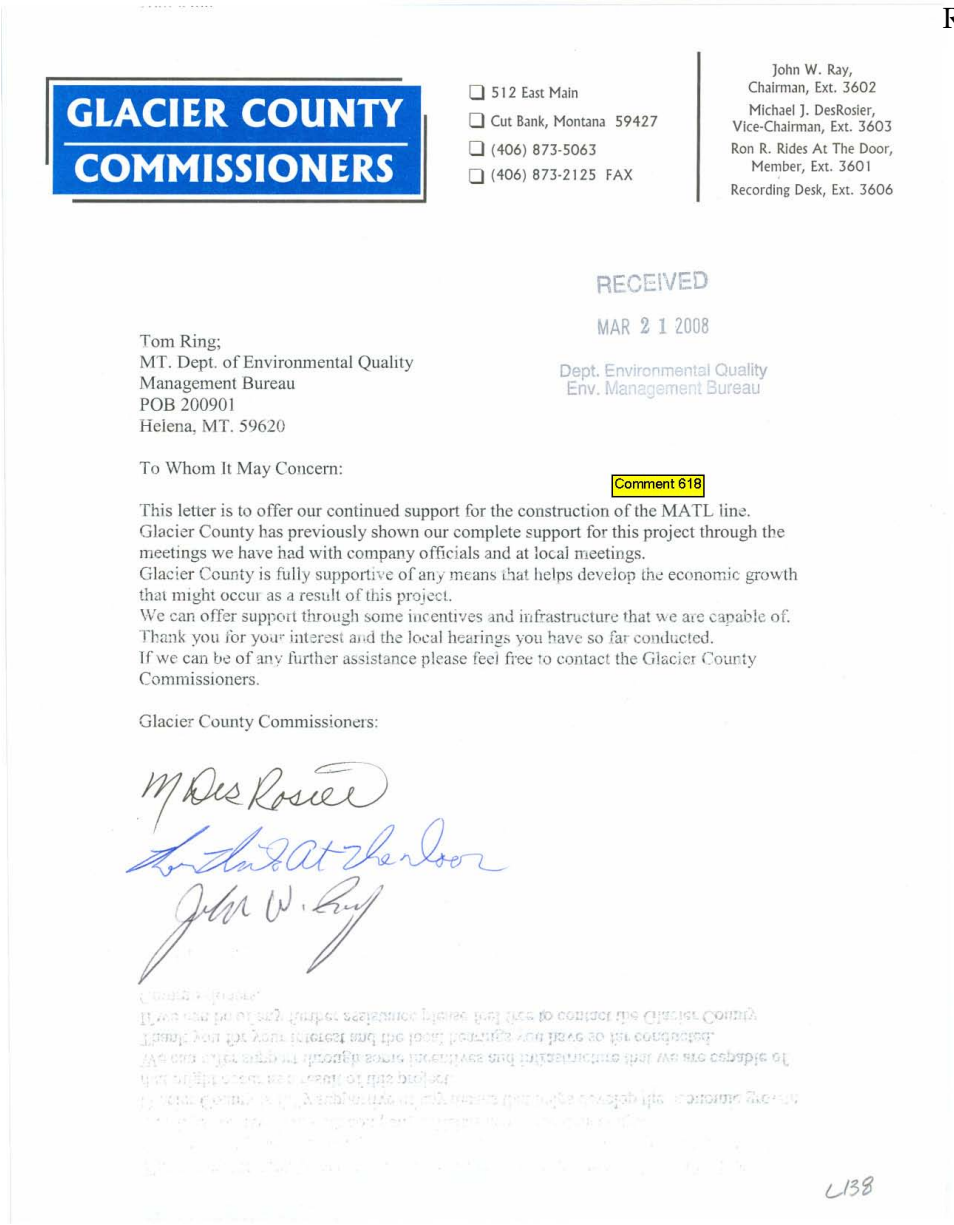
George Wuerthner
306 South Fifth
Livingston Montana 59047

12

4/37

Response 617: The EIS analyzes effects of the proposed line and several alternatives. Length of the proposed line in the United States is approximately 130 miles. All alternative alignments would extend from the Cut Bank area to Great Falls, and would cross but not parallel I-15. See Figures 2.3-1, 2.4-1, and 2.5-1 for locations of these alternatives.

Assessment of cumulative effects of potential wind farm development, including location, size and number of turbines, was based on the best available information. The agencies do not know at this time where turbines would be located. The agencies judged it unduly speculative to assume that feeder lines more than 40 miles in length would be built to serve a single moderate sized wind farm outside of Glacier National Park or the Rocky Mountain Front. Also see the discussion of Visual Issues and Wind Farm Issues in the Consolidated Responses section and the discussion of wind farms in Chapter 4.



GLACIER COUNTY COMMISSIONERS

512 East Main
Cut Bank, Montana 59427
(406) 873-5063
(406) 873-2125 FAX

John W. Ray, Chairman, Ext. 3602
Michael J. DesRosier, Vice-Chairman, Ext. 3603
Ron R. Rides At The Door, Member, Ext. 3601
Recording Desk, Ext. 3606

RECEIVED
MAR 2 1 2008
Dept. Environmental Quality
Env. Management Bureau

Tom Ring;
MT. Dept. of Environmental Quality
Management Bureau
POB 200901
Helena, MT. 59620

To Whom It May Concern:

Comment 618

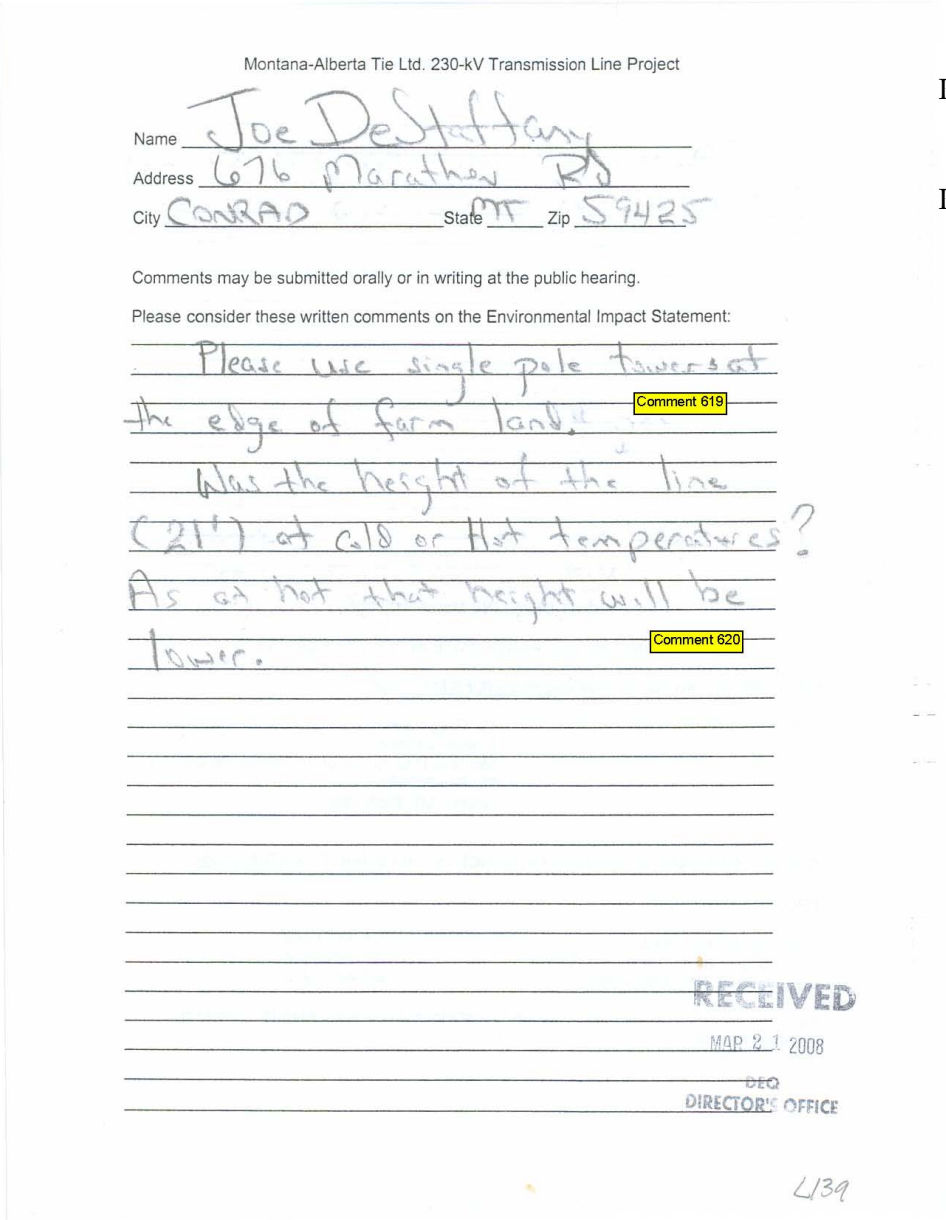
This letter is to offer our continued support for the construction of the MATL line.
Glacier County has previously shown our complete support for this project through the meetings we have had with company officials and at local meetings.
Glacier County is fully supportive of any means that helps develop the economic growth that might occur as a result of this project.
We can offer support through some incentives and infrastructure that we are capable of.
Thank you for your interest and the local hearings you have so far conducted.
If we can be of any further assistance please feel free to contact the Glacier County Commissioners.

Glacier County Commissioners:

M DesRosier
Ron R. Rides At The Door
John W. Ray

L138

Response 618: Comment noted.



Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Joe DeStaffany

Address 676 Marathon Rd

City CONRAD State MT Zip 59425

Comments may be submitted orally or in writing at the public hearing.

Please consider these written comments on the Environmental Impact Statement:

Please use single pole towers at the edge of farm land. Comment 619

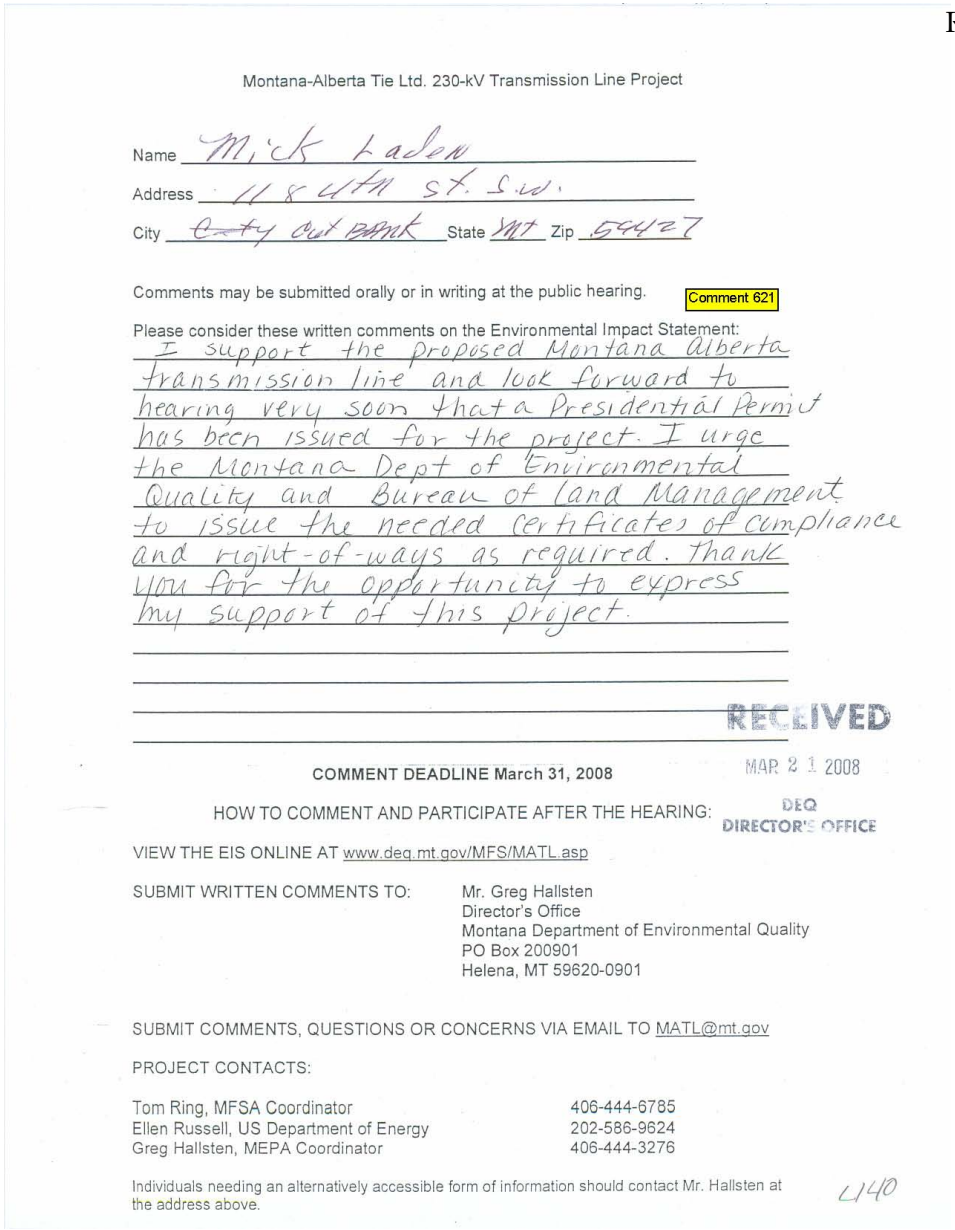
Was the height of the line (21') at cold or Hot temperatures? As at hot that height will be lower. Comment 620

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MAR 21 2008
DEQ
DIRECTOR'S OFFICE

L139

Response 619: Comment noted. See the discussion of Farming Issues in the Consolidated Responses section.

Response 620: See the discussion of Safety Issues in the Consolidated Responses section.



Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Mick Ladon

Address 118 4th St. S.W.

City ~~City out BANK~~ State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing. Comment 621

Please consider these written comments on the Environmental Impact Statement:

I support the proposed Montana Alberta transmission line and look forward to hearing very soon that a Presidential Permit has been issued for the project. I urge the Montana Dept of Environmental Quality and Bureau of Land Management to issue the needed certificates of compliance and right-of-ways as required. Thank you for the opportunity to express my support of this project.

RECEIVED
MAR 21 2008
DEQ
DIRECTOR'S OFFICE

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L140

Response 621: Comments noted.

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name GENI LADEN

Address 118 4th St. SW

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing.

Please consider these written comments on the Environmental Impact Statement: See Comment 621

I support the proposed Montana Alberta transmission line and look forward to hearing very soon that a Presidential Permit has been issued for the project. I urge the Montana Dept of Environmental Quality and Bureau of Land Management to issue the needed certificates of compliance and right-of-ways as required. Thank you for the opportunity to express my support of this project.

RECEIVED
MAR 21 2008
DEQ
DIRECTOR'S OFFICE

COMMENT DEADLINE March 31, 2008

HOW TO COMMENT AND PARTICIPATE AFTER THE HEARING:

VIEW THE EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO: Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624
Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L141

Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Name Scott Laden

Address 118 4th St. S.W.

City Cut Bank State MT Zip 59427

Comments may be submitted orally or in writing at the public hearing.

See Comment 621

Please consider these written comments on the Environmental Impact Statement:

I support the proposed Montana Alberta transmission line and look forward to hearing very soon that a Presidential Permit has been issued for the project. I urge the Montana Dept of Environmental Quality and Bureau of Land Management to issue the needed certificates of compliance and right-of-ways as required. Thank you for the opportunity to express my support of this project.

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Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

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Greg Hallsten, MEPA Coordinator	406-444-3276

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

L142

Ring, Tom

From:	Gene & Linda Sentz [friends@3rivers.net]
Posted At:	Saturday, March 22, 2008 9:50 AM
Conversation:	Public comment on MATL: The DEIS does not appear to meet mandated NEPA requirements on cumulative impact and effects
Posted To:	MATL
Subject:	Public comment on MATL: The DEIS does not appear to meet mandated NEPA requirements on cumulative impact and effects

March 22, 2008 (hard copy sent via USPS mail)

Montana Department of Environmental Quality

Environmental Management Bureau

ATTN: Tom Ring

PO Box 200901

Helena, MT 59620-0901

Re: MATL & big wind farms…

To all boosters:

With some strict limits it might all turn out okay, but…

Be careful what you wish for. It could become too much of a good thing.

…and beware of unintended consequences.

Dear DEQ & DOE, et al:

Comment 622

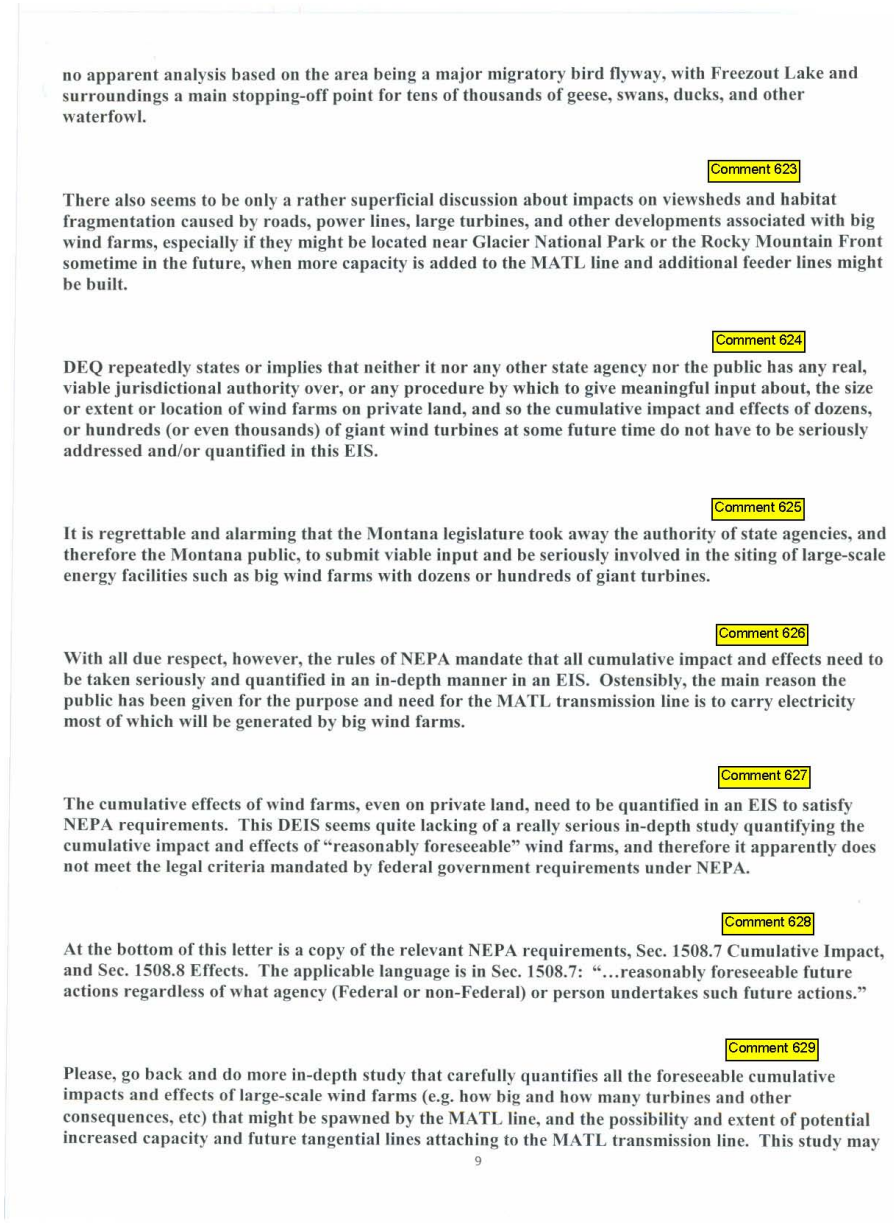
The MATL DEIS repeatedly implies that this environmental study really is all about the transmission line and that it does not have to address in much depth the location, number, size, and effects of the accompanying wind farms. Therefore, the cumulative impact and effects of wind farms that are expected to feed into the MATL line are covered only in a rather cursory fashion in the draft EIS.

Just as an example, the DEIS mentions, almost as an afterthought, that more than 900 passerine birds and 1700 bats could be killed annually by the wind turbines associated with the MATL line. Yet there is

8

L43

Response 622: The potential cumulative impacts of wind farms that may connect with the MATL line, assessed in Sections 4.1 to 4.16, are based on realistic estimates of likely locations and conservative estimates of the number of wind turbines that could be built. Specific details are not yet available, and neither DOE nor DEQ would have regulatory authority over the siting of wind farms unless specific locations required a water quality permit under the Montana Water Quality Act. Because mortality data from areas with high bird migration are included in the data used as a basis for analyzing potential mortality of birds and bats, the analysis should bound the potential impact on migratory birds. The EIS discusses the potential for adverse effects on birds from facilities near Benton Lake National Wildlife Refuge. Freezeout Lake is about 40 miles west of Great Falls, so it should not be affected by the wind farms sited to connect directly to the transmission line. Also see the discussion of Avian and Wildlife Issues in the Consolidated Responses section and sections 3.8.3 and 4.9.



no apparent analysis based on the area being a major migratory bird flyway, with Freezout Lake and surroundings a main stopping-off point for tens of thousands of geese, swans, ducks, and other waterfowl.

Comment 623

There also seems to be only a rather superficial discussion about impacts on viewsheds and habitat fragmentation caused by roads, power lines, large turbines, and other developments associated with big wind farms, especially if they might be located near Glacier National Park or the Rocky Mountain Front sometime in the future, when more capacity is added to the MATL line and additional feeder lines might be built.

Comment 624

DEQ repeatedly states or implies that neither it nor any other state agency nor the public has any real, viable jurisdictional authority over, or any procedure by which to give meaningful input about, the size or extent or location of wind farms on private land, and so the cumulative impact and effects of dozens, or hundreds (or even thousands) of giant wind turbines at some future time do not have to be seriously addressed and/or quantified in this EIS.

Comment 625

It is regrettable and alarming that the Montana legislature took away the authority of state agencies, and therefore the Montana public, to submit viable input and be seriously involved in the siting of large-scale energy facilities such as big wind farms with dozens or hundreds of giant turbines.

Comment 626

With all due respect, however, the rules of NEPA mandate that all cumulative impact and effects need to be taken seriously and quantified in an in-depth manner in an EIS. Ostensibly, the main reason the public has been given for the purpose and need for the MATL transmission line is to carry electricity most of which will be generated by big wind farms.

Comment 627

The cumulative effects of wind farms, even on private land, need to be quantified in an EIS to satisfy NEPA requirements. This DEIS seems quite lacking of a really serious in-depth study quantifying the cumulative impact and effects of "reasonably foreseeable" wind farms, and therefore it apparently does not meet the legal criteria mandated by federal government requirements under NEPA.

Comment 628

At the bottom of this letter is a copy of the relevant NEPA requirements, Sec. 1508.7 Cumulative Impact, and Sec. 1508.8 Effects. The applicable language is in Sec. 1508.7: "…reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such future actions."

Comment 629

Please, go back and do more in-depth study that carefully quantifies all the foreseeable cumulative impacts and effects of large-scale wind farms (e.g. how big and how many turbines and other consequences, etc) that might be spawned by the MATL line, and the possibility and extent of potential increased capacity and future tangential lines attaching to the MATL transmission line. This study may

9

Response 623: Assessment of cumulative effects of potential wind farm development, including location, size and number of turbines, was based on the best available information. The agencies do not know at this time where turbines would be located. MATL has not proposed to upgrade the line (see the discussion in response to comment 183). DOE would require a new NEPA review if capacity increase were proposed for the MATL transmission line. The agencies judged it unduly speculative to assume that feeder lines more than 40 miles in length would be built to serve a single moderate sized wind farm outside of Glacier National Park or the Rocky Mountain Front. Therefore, this situation is not reasonably foreseeable. Also see the discussion of Visual Issues and Wind Farm Issues in the Consolidated Responses section.

Response 624: Since 1995 Montana's legislature has decreased the amount of regulatory control over generation facilities under the Montana Major Facility Siting Act. In 2001 the legislature removed the DEQ's authority to regulate the location of most types of generation facilities. DEQ does not have the authority to regulate the location of wind farms under other statutes it administers. Without statutory authority, DEQ cannot guarantee that the public would have a voice in determining where future wind farm developments should or should not be located. The agencies understand that the wind farms would be located on privately owned land. See the discussion of Wind Farm Issues in the Consolidated Responses section and sections 4.1 through 4.16.

Response 625: Comment noted.

Response 626 to 629: See the discussion of Wind Farm Issues in the Consolidated Responses section. In compliance with NEPA, analysis of the potential cumulative impacts of reasonably foreseeable actions, including wind farms that may use the transmission capacity of the proposed MATL line, is in Sections 4.1 to 4.16. The cumulative impacts analysis considers the impacts of wind farm developments that might be built to use the full potential transmission capacity of the MATL line. The analysis is based on the best available information respecting the potential sizes, designs, and locations of reasonably foreseeable future wind farms.

be the best chance – possibly the only chance – that the public will ever have to consider and comment on such impacts to this region of Montana.

Finally: PLEASE, NO WIND FARMS NEAR THE ROCKY MOUNTAIN FRONT ! Comment 630

Respectfully,

Gene Sentz

PO Box 763

Choteau, Montana 59422

friends@3rivers.net

NEPA Requirements to be studied in an EIS:

Sec. 1508.7 Cumulative impact.

"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Sec. 1508.8 Effects.

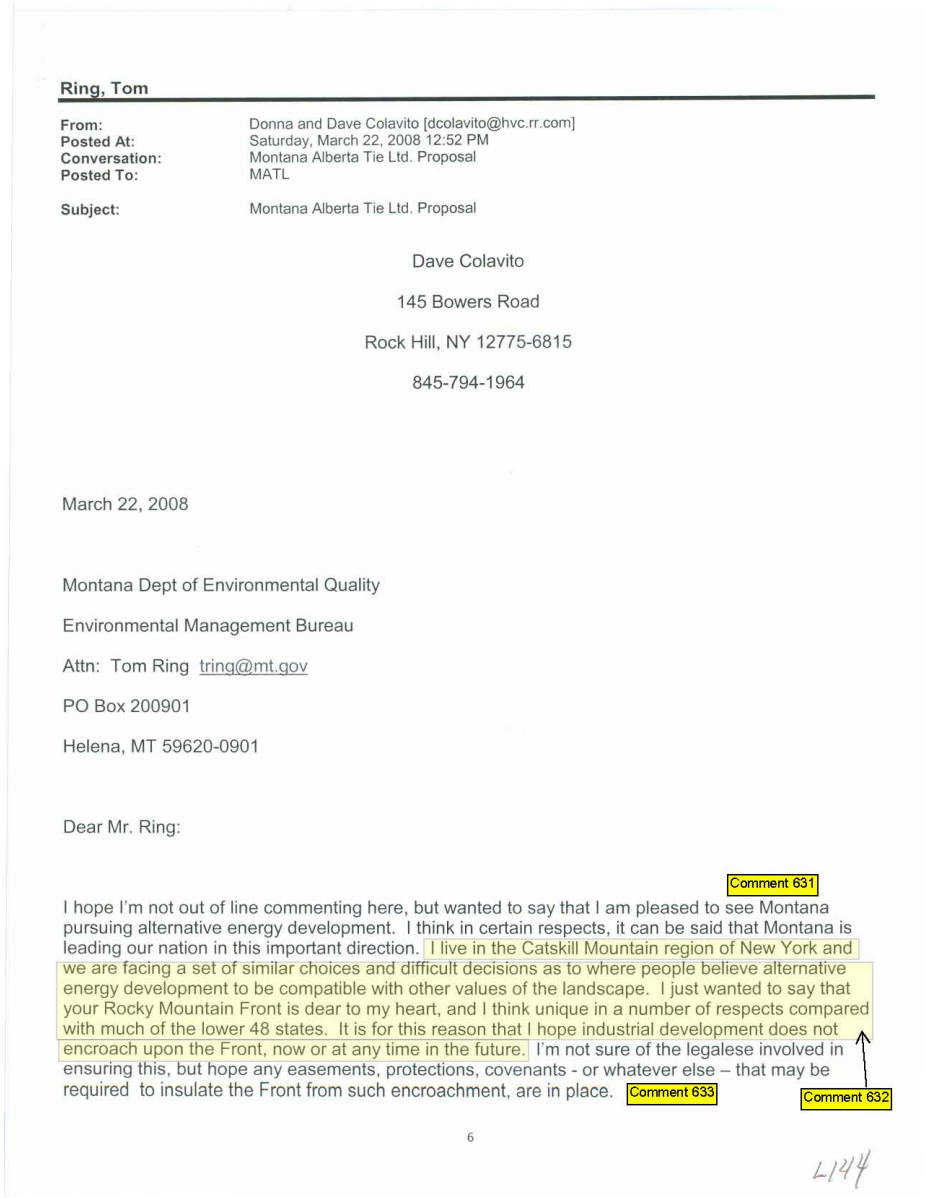
"Effects" include:

(a) Direct effects, which are caused by the action and occur at the same time and place.

(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the

Response 630: Comment noted.



Ring, Tom

From: Donna and Dave Colavito [dcolavito@hvc.rr.com]
Posted At: Saturday, March 22, 2008 12:52 PM
Conversation: Montana Alberta Tie Ltd. Proposal
Posted To: MATL

Subject: Montana Alberta Tie Ltd. Proposal

Dave Colavito

145 Bowers Road

Rock Hill, NY 12775-6815

845-794-1964

March 22, 2008

Montana Dept of Environmental Quality

Environmental Management Bureau

Attn: Tom Ring tring@mt.gov

PO Box 200901

Helena, MT 59620-0901

Dear Mr. Ring:

Comment 631

I hope I'm not out of line commenting here, but wanted to say that I am pleased to see Montana pursuing alternative energy development. I think in certain respects, it can be said that Montana is leading our nation in this important direction. I live in the Catskill Mountain region of New York and we are facing a set of similar choices and difficult decisions as to where people believe alternative energy development to be compatible with other values of the landscape. I just wanted to say that your Rocky Mountain Front is dear to my heart, and I think unique in a number of respects compared with much of the lower 48 states. It is for this reason that I hope industrial development does not encroach upon the Front, now or at any time in the future. I'm not sure of the legalese involved in ensuring this, but hope any easements, protections, covenants - or whatever else – that may be required to insulate the Front from such encroachment, are in place.

Comment 633

Comment 632

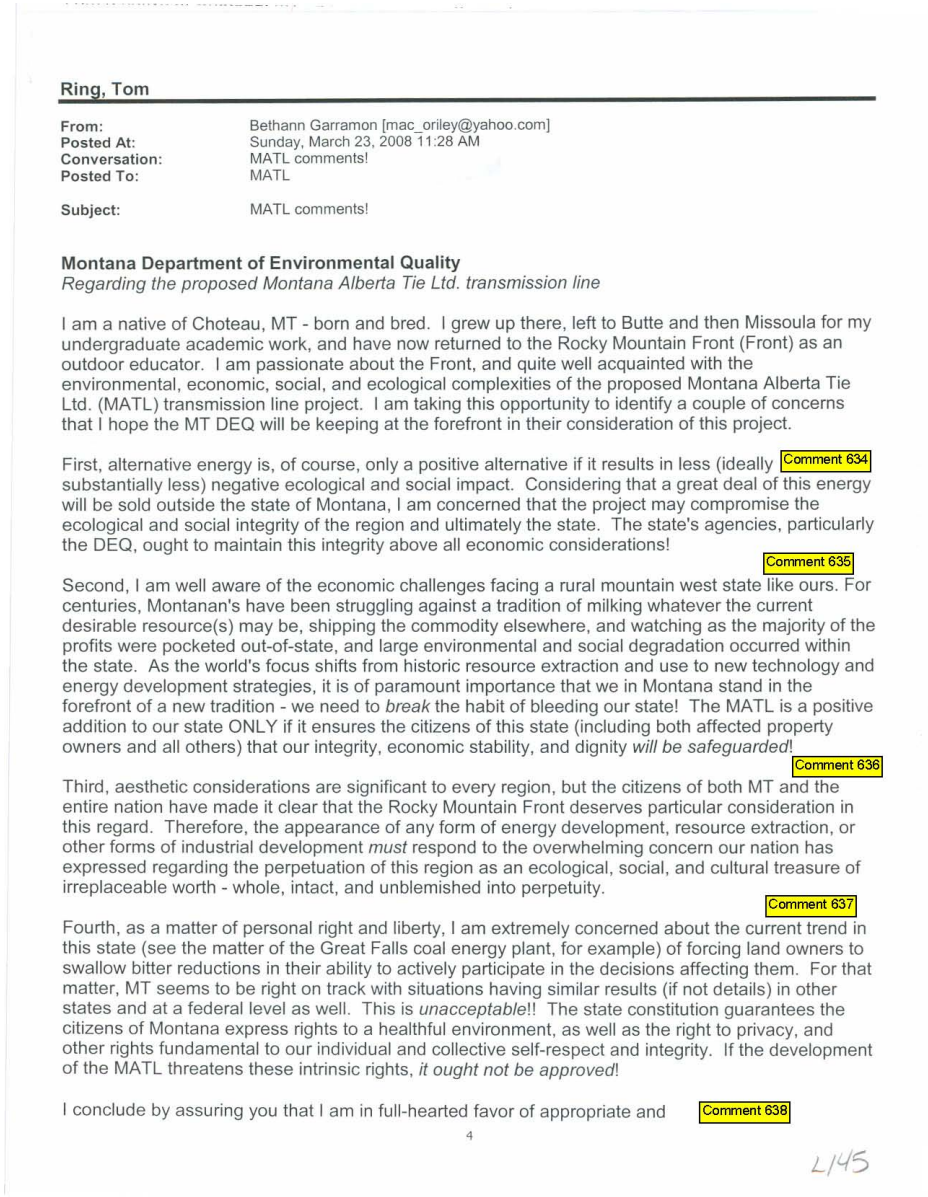
6

L124

Response 631: Comment noted.

Response 632: See the discussion of Visual Issues in the Consolidated Responses section.

Response 633: The topic of legal mechanisms to prevent industrial encroachment on the Rocky Mountain Front is outside the scope of this EIS.



Ring, Tom

From: Bethann Garramon [mac_oriley@yahoo.com]
Posted At: Sunday, March 23, 2008 11:28 AM
Conversation: MATL comments!
Posted To: MATL

Subject: MATL comments!

Montana Department of Environmental Quality
Regarding the proposed Montana Alberta Tie Ltd. transmission line

I am a native of Choteau, MT - born and bred. I grew up there, left to Butte and then Missoula for my undergraduate academic work, and have now returned to the Rocky Mountain Front (Front) as an outdoor educator. I am passionate about the Front, and quite well acquainted with the environmental, economic, social, and ecological complexities of the proposed Montana Alberta Tie Ltd. (MATL) transmission line project. I am taking this opportunity to identify a couple of concerns that I hope the MT DEQ will be keeping at the forefront in their consideration of this project.

First, alternative energy is, of course, only a positive alternative if it results in less (ideally substantially less) negative ecological and social impact. Considering that a great deal of this energy will be sold outside the state of Montana, I am concerned that the project may compromise the ecological and social integrity of the region and ultimately the state. The state's agencies, particularly the DEQ, ought to maintain this integrity above all economic considerations!

Comment 634

Comment 635

Second, I am well aware of the economic challenges facing a rural mountain west state like ours. For centuries, Montanan's have been struggling against a tradition of milking whatever the current desirable resource(s) may be, shipping the commodity elsewhere, and watching as the majority of the profits were pocketed out-of-state, and large environmental and social degradation occurred within the state. As the world's focus shifts from historic resource extraction and use to new technology and energy development strategies, it is of paramount importance that we in Montana stand in the forefront of a new tradition - we need to *break* the habit of bleeding our state! The MATL is a positive addition to our state ONLY if it ensures the citizens of this state (including both affected property owners and all others) that our integrity, economic stability, and dignity *will be safeguarded*!

Comment 636

Third, aesthetic considerations are significant to every region, but the citizens of both MT and the entire nation have made it clear that the Rocky Mountain Front deserves particular consideration in this regard. Therefore, the appearance of any form of energy development, resource extraction, or other forms of industrial development *must* respond to the overwhelming concern our nation has expressed regarding the perpetuation of this region as an ecological, social, and cultural treasure of irreplaceable worth - whole, intact, and unblemished into perpetuity.

Comment 637

Fourth, as a matter of personal right and liberty, I am extremely concerned about the current trend in this state (see the matter of the Great Falls coal energy plant, for example) of forcing land owners to swallow bitter reductions in their ability to actively participate in the decisions affecting them. For that matter, MT seems to be right on track with situations having similar results (if not details) in other states and at a federal level as well. This is *unacceptable*!! The state constitution guarantees the citizens of Montana express rights to a healthful environment, as well as the right to privacy, and other rights fundamental to our individual and collective self-respect and integrity. If the development of the MATL threatens these intrinsic rights, *it ought not be approved*!

I conclude by assuring you that I am in full-hearted favor of appropriate and

Comment 638

4

L145

Response 634 to 635: Comments noted.

Response 636: The Rocky Mountain Front is more than 50 miles away from the proposed MATL line and more than 10 miles away from the nearest potential wind farm that might use the MATL line. See the discussion of Visual Issues in the Consolidated Responses section.

Response 637 and 638: Comments noted.

expediant development of more economically efficient and ecologically sound energy technologies and natural resource useage. However, I cannot support decisons which would threaten the ecological sanctity of a region considered to be one of the most biologically diverse, historically intact, and therefore significant regions of the planet! Additionally, I will stand and speak in opposition to any decisions with threaten to carry on the tradition of culturally detrimental economic practices which have faced Montanans since long before its statehood. The integrity of the place and its people, ecologically, culturally, and *then* economically ***MUST*** become a principle factor in all decisions made by the governments affecting this state.

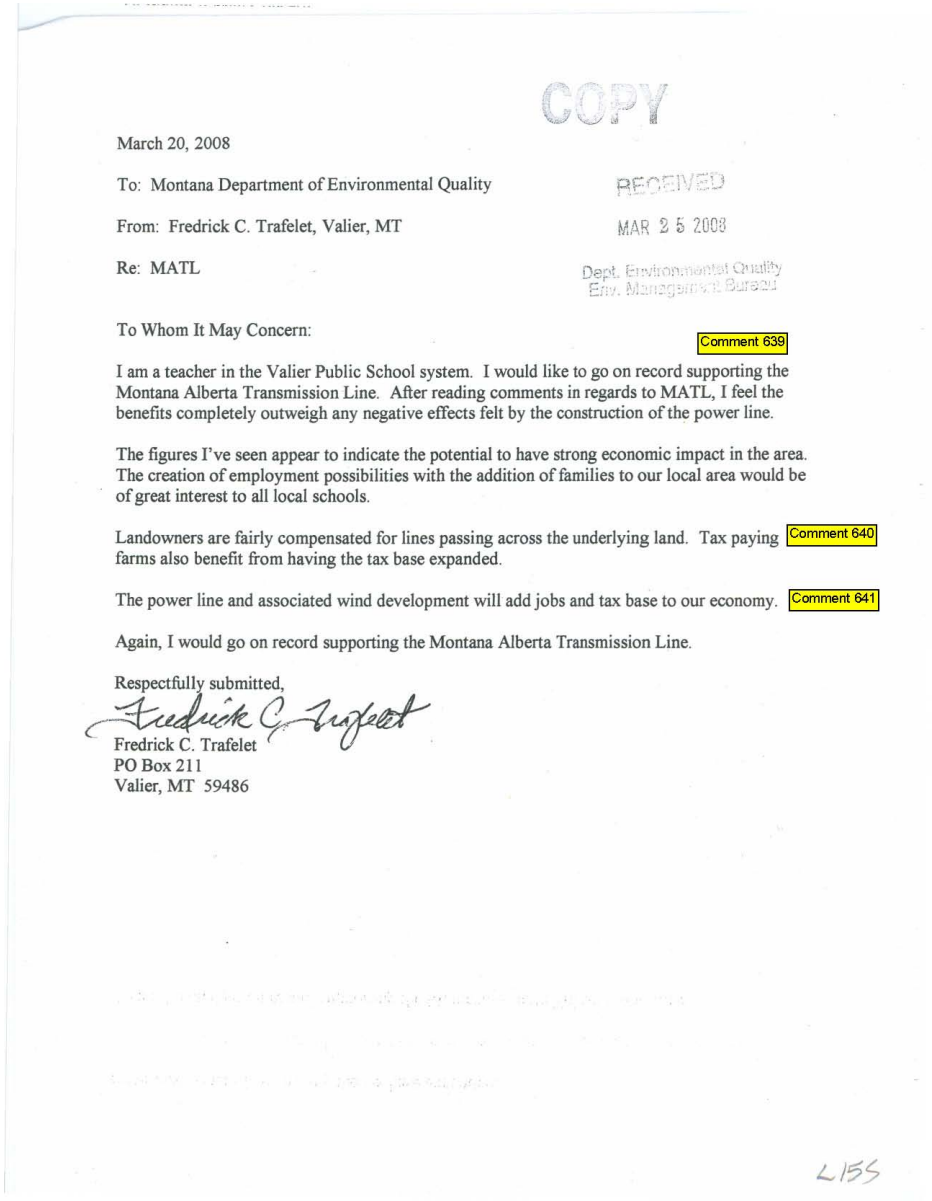
I thank you sincerely for your attention to the concerns and very real needs of the state of Montana

Sincerely,
Bethann Garramon

Comment 638 (Cont.)

Never miss a thing. Make Yahoo your homepage.

5



COPY

March 20, 2008

To: Montana Department of Environmental Quality

From: Fredrick C. Trafelet, Valier, MT

Re: MATL

RECEIVED
MAR 25 2008
Dept. Environmental Quality
Env. Management Bureau

To Whom It May Concern:

Comment 639

I am a teacher in the Valier Public School system. I would like to go on record supporting the Montana Alberta Transmission Line. After reading comments in regards to MATL, I feel the benefits completely outweigh any negative effects felt by the construction of the power line.

The figures I've seen appear to indicate the potential to have strong economic impact in the area. The creation of employment possibilities with the addition of families to our local area would be of great interest to all local schools.

Landowners are fairly compensated for lines passing across the underlying land. Tax paying farms also benefit from having the tax base expanded. Comment 640

The power line and associated wind development will add jobs and tax base to our economy. Comment 641

Again, I would go on record supporting the Montana Alberta Transmission Line.

Respectfully submitted,

Fredrick C. Trafelet

Fredrick C. Trafelet
PO Box 211
Valier, MT 59486

L155

Response 639 to 641: Comments noted.

March 11, 2008

RECEIVED
MAR 2 6 2008
Dept. Environmental Quality
Env. Mgmt. Bureau

Montana Dept of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
P.O. Box 200901
Helena, MT 59620-0901

To whom it may Concern,

Comment 642

I am writing in support of the MATL line that is proposed between Cut Bank and Great Falls. I am a farmer in Pondera County, however the line will not cross any of my property. I have owned property in 3 of Montana's counties over the last 38 years, so am quite familiar with the amount of property tax paid by property owners in Montana. Any increase in tax base will be welcome.

Comment 643

We, in the State of Montana, need this project and other like it, to give a boost to our economy both locally and State wide. There is no good reason why this should not be approved and many reasons why it should. Development of clean, renewable wind energy along the line is probably among the most important. The exportation of a resource such as energy (wind) can only help the state's economy both through jobs and an increase in tax base. We export wheat, barley and beef among other things, why not energy?

Comment 644

For those that are concerned about the "viewshed" of the Rocky Mountain Front, I suggest they go west of the line and look to their heart's content.

In reality, I believe the single most important reason for development of this or any Comment 645 environmentally sound project is the retention of our most valuable resource. I speak of our children, the young adults that leave our state each year because the only jobs available in the State are low paying service related jobs. Our best and brightest are going to Seattle, Portland and Denver for good paying jobs they need to pay off their student loans and still have a decent standard of living. Maybe, if we allow some sound resource extraction and/or exportation projects like the MATL line, our kids will be able to find a good job at home.

Comment 646

In closing I would like to remind all concerned that the only true wealth of any nation, ours included, comes from the earth, whether it be agriculture, mining, timber, or energy from oil, coal, hydro, wind or solar. It all comes from the land.

Thank you for your time and consideration.

Sincerely,

Brad Huffman
7763 US Hwy 91 North
Conrad, Mt 59425

L167

Response 642 and 643: Comments noted.

Response 644: Comment noted. The agencies acknowledge that, visually, different viewpoints provide different perspectives. See the discussion of Visual Issues in the Consolidated Responses section.

Response 645 and 646: Comments noted.



Page 1 of 1

Ring, Tom

From: dmuenchphoto@aol.com
Sent: Thursday, March 27, 2008 9:45 AM
To: Ring, Tom; MATL
Subject: MATL proposal

Comment 647

I want to go on record, please, with my feelings about the MATL proposal. Montana's Rocky Mountain Front is one of the most specail undeveloped and uncluttered landscapes in North America. A lot of people have fought long and hard to keep it that way. And, while I support alternative energy, I would rather not see big wind farms built anywhere near The Front.

Thank you so much.

Sincerely,

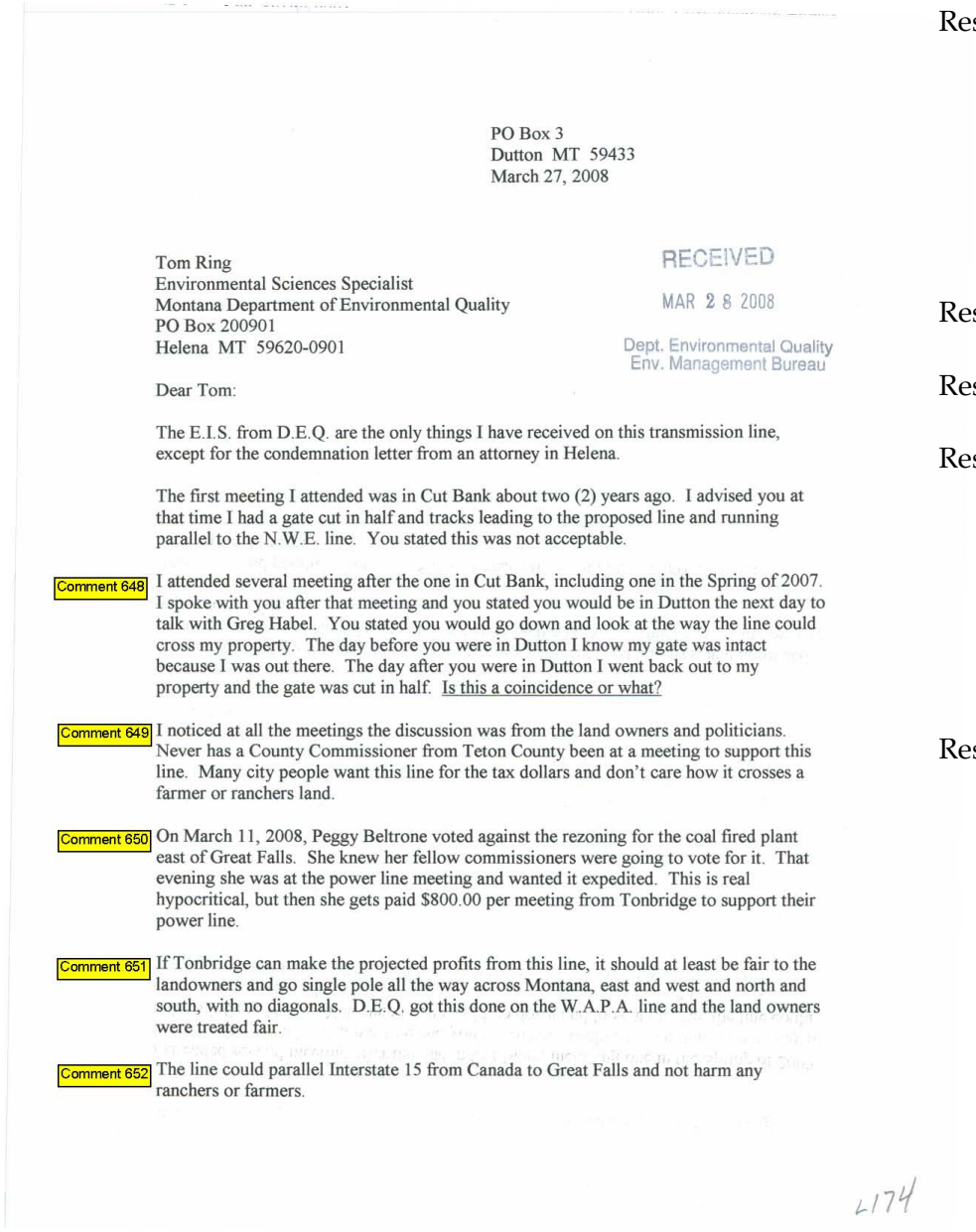
Ruth Rudner
Harrison, Montana & Corrales, New Mexico

Planning your summer road trip? Check out AOL Travel Guides.

3/27/2008

L173

Response 647: The agencies do not know at this time where turbines would be located. The agencies judged it unduly speculative to assume that feeder lines more than 40 miles in length would be built to serve a single moderate sized wind farm outside of Glacier National Park or the Rocky Mountain Front. Also see the discussions of Visual Issues and Wind Farm Issues in the Consolidated Responses section.



PO Box 3
Dutton MT 59433
March 27, 2008

Tom Ring
Environmental Sciences Specialist
Montana Department of Environmental Quality
PO Box 200901
Helena MT 59620-0901

RECEIVED
MAR 28 2008
Dept. Environmental Quality
Env. Management Bureau

Dear Tom:

The E.I.S. from D.E.Q. are the only things I have received on this transmission line, except for the condemnation letter from an attorney in Helena.

The first meeting I attended was in Cut Bank about two (2) years ago. I advised you at that time I had a gate cut in half and tracks leading to the proposed line and running parallel to the N.W.E. line. You stated this was not acceptable.

Comment 648 I attended several meeting after the one in Cut Bank, including one in the Spring of 2007. I spoke with you after that meeting and you stated you would be in Dutton the next day to talk with Greg Habel. You stated you would go down and look at the way the line could cross my property. The day before you were in Dutton I know my gate was intact because I was out there. The day after you were in Dutton I went back out to my property and the gate was cut in half. Is this a coincidence or what?

Comment 649 I noticed at all the meetings the discussion was from the land owners and politicians. Never has a County Commissioner from Teton County been at a meeting to support this line. Many city people want this line for the tax dollars and don't care how it crosses a farmer or ranchers land.

Comment 650 On March 11, 2008, Peggy Beltrone voted against the rezoning for the coal fired plant east of Great Falls. She knew her fellow commissioners were going to vote for it. That evening she was at the power line meeting and wanted it expedited. This is real hypocritical, but then she gets paid $800.00 per meeting from Tonbridge to support their power line.

Comment 651 If Tonbridge can make the projected profits from this line, it should at least be fair to the landowners and go single pole all the way across Montana, east and west and north and south, with no diagonals. D.E.Q. got this done on the W.A.P.A. line and the land owners were treated fair.

Comment 652 The line could parallel Interstate 15 from Canada to Great Falls and not harm any ranchers or farmers.

L174

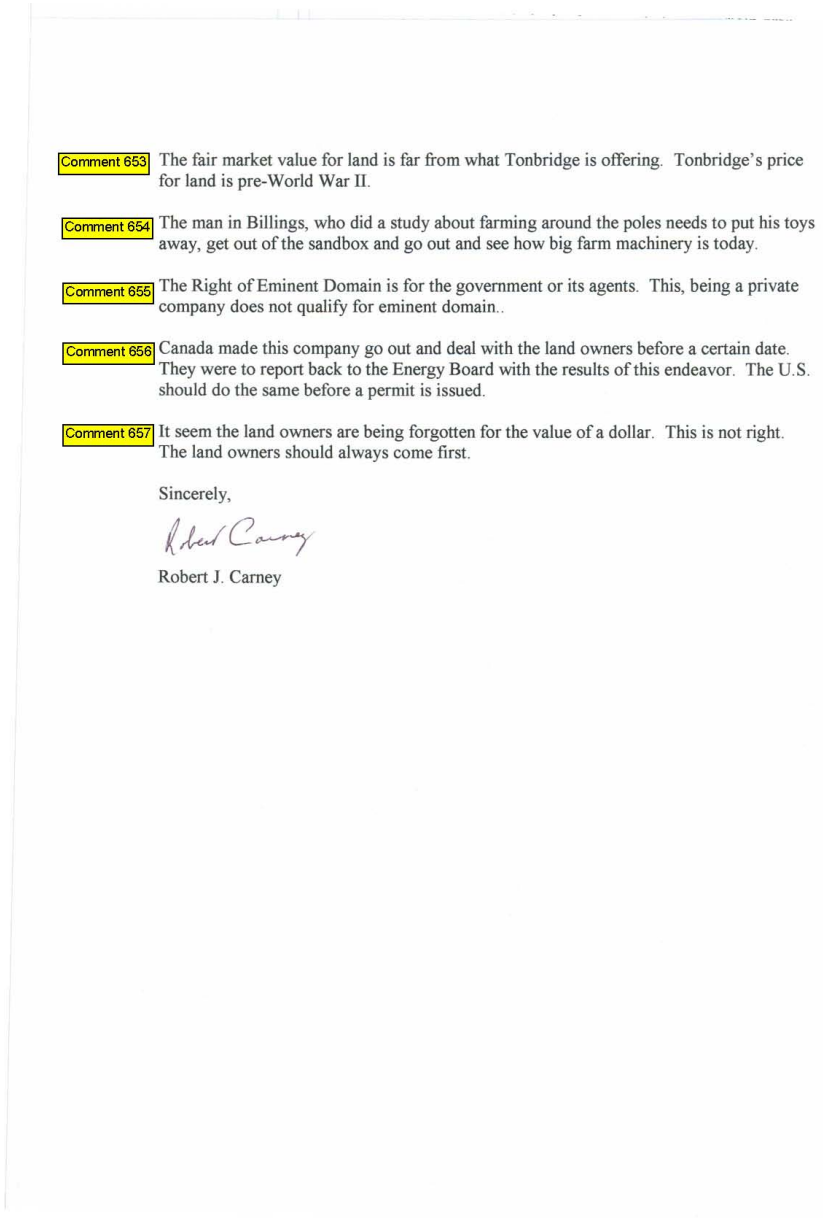
Response 648: DEQ staff contacted Mr. Carney for permission to walk on his property to inspect the landslide adjacent to MATL's proposed alignment. Mr. Carney granted his permission. A neighbor gave a DEQ staff member a ride to the State Trust Land section at the Teton River crossing, and the DEQ staffer proceeded on foot on the Carney property. DEQ staff did not cut Mr. Carney's gate.

Response 649: Comment noted.

Response 650: Comment noted.

Response 651: Comment noted. The commenter is correct in observing that when Western Area Power Administration built the Great Falls to Conrad and later the Conrad to Shelby 230 kV transmission lines, it sited the lines on rangeland and pasture where it was available. Elsewhere, those lines generally used field boundaries in most but not all areas.

Response 652: Federal regulations prevent the line from sharing the right-of-way of the interstate system. Locating the line off the interstate right-of-way would still place structures in farm fields and would also place the line near homes.



Comment 653 The fair market value for land is far from what Tonbridge is offering. Tonbridge's price for land is pre-World War II.

Comment 654 The man in Billings, who did a study about farming around the poles needs to put his toys away, get out of the sandbox and go out and see how big farm machinery is today.

Comment 655 The Right of Eminent Domain is for the government or its agents. This, being a private company does not qualify for eminent domain..

Comment 656 Canada made this company go out and deal with the land owners before a certain date. They were to report back to the Energy Board with the results of this endeavor. The U.S. should do the same before a permit is issued.

Comment 657 It seem the land owners are being forgotten for the value of a dollar. This is not right. The land owners should always come first.

Sincerely,

Robert Carney

Robert J. Carney

Response 653 and 654: See the discussion of Farming Issues in the Consolidated Responses section.

Response 655: Under Montana law the use of eminent domain is not limited to a governmental entity and may be exercised by a private company as long as it is for a public use listed in Section 70-30-102, MCA. Also see the discussion of Legal and Regulatory Issues in the Consolidated Responses section for related information.

Response 656: Comment noted.

Response 657: Comment noted.

Ben Ober,
Commission Chairman
Allan Underdal,
Commissioner
Dave Miller,
Commissioner
Merle Raph,
County Attorney
Donna Matoon,
Sheriff
Dan B. Whitted,
Coroner
Commissioners
Office# 406-424-8310
tccomm@3rivers.net



Mary Ann Harwood,
Clerk & Recorder
Sandra Peers,
Clerk of Court
Boyd Jackson,
Treasurer/Assessor
Supt. Of Schools
Helen I. Schnee,
Public Administrator
Russell Mann,
Justice of the Peace
Clerk & Recorders Office#
406-424-8300
Fax# 406-424-8301
tcclerk@3rivers.net

COUNTY OF TOOLE

226 1ST Street South
Toole County Courthouse, Shelby, MT 59474

COPY

March 28, 2008

Tom Ring, Environmental Sciences Specialist
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59602

Dear Tom;

Comment 658

We are writing to express our enthusiastic support of the proposed MATL Line from Lethbridge to Great Falls. This is a very important project for Northern Montana and Toole County in particular. This power line will generate over one billion dollars of investment in Toole, Pondera, and Glacier Counties. It will also be positive for power consumers in Montana, as the byproduct, wind energy, will add 600 Megawatts to the total generation capacity in the grid. Other positive byproducts will be construction and permanent jobs, tax base increase, and stimulation of our local economies.

We believe that there are legitimate concerns from landowners and that they should be worked out as best they can be, but we feel very strongly that there be **no further delays** to the project. Again, we strongly support the project and hope that you will grant them the permitting needed as soon as possible. Thanks for listening. Comment 659

Respectfully,

Ben Ober
Chairman

Allan Underdal
Commissioner

Dave Miller
Commissioner

L179

Response 658 and 659: Comment noted. See the discussion of Socioeconomic Impact Issues in the Consolidated Responses section.

Response 660 to 666: Comments noted.

TO: THE MONTANA DEPARTMENT OF ENVIROMENTAL QUALITY
THE U. S. DEPARTMENT OF ENERGY

We the undersigned strongly endorse approval of the Montana-Alberta Tie Line (MATL) from Lethbridge, Alberta, Canada to Great Falls, Montana.

MATL is the key to development of up to $1 billion in wind energy projects that will be an enormous economic benefit for north central Montana, the State of Montana, and the nation's energy supply. The increased tax base, construction jobs, royalty payments from wind generators, and the permanent monitoring and maintenance jobs will provide badly needed tax dollars for Montana, local schools, law enforcement, fire departments, county roads, parks, and other services. Comment 660

Wind is one natural resource northern Montana has plenty of and, in fact, it is rated one of the best and most reliable wind resources on the North American continent. Without transmission lines to move electric power, wind cannot be developed. Comment 661

After a rather rough start, MATL is demonstrating an eager willingness to work with affected landowners to address concerns regarding routing of transmission lines and placement of poles that would be potentially disruptive to agriculture operations. This includes the use of monopoles rather than "H" poles, wherever it is practical. MATL has entered into multiple landowner agreements should this project receive final approval and concurs with recommendations in the DEQ report. Landowners must be fairly compensated and treated with the up-most dignity... Comment 662

The MATL line will improve the reliability of the electric transmission system in both Montana and Alberta by making these regions less vulnerable to outages, brownouts, and creating a greater opportunity to import and export electricity, all of can be of benefit to consumers and suppliers. It's predicted the United States within a few years will experience an energy shortage due to increased demand and the cancellation of approximately 60 coal fired generation projects in the U.S. because of environmental concerns. It's absolutely imperative we develop this country's green and clean energy resources for our generation and future generations to come. Comment 663

It is important to note that MATL is a "merchant line" and the large capital investment and risk is made by the banks and private investors rather than by local taxpayers in Montana and Alberta. Comment 664

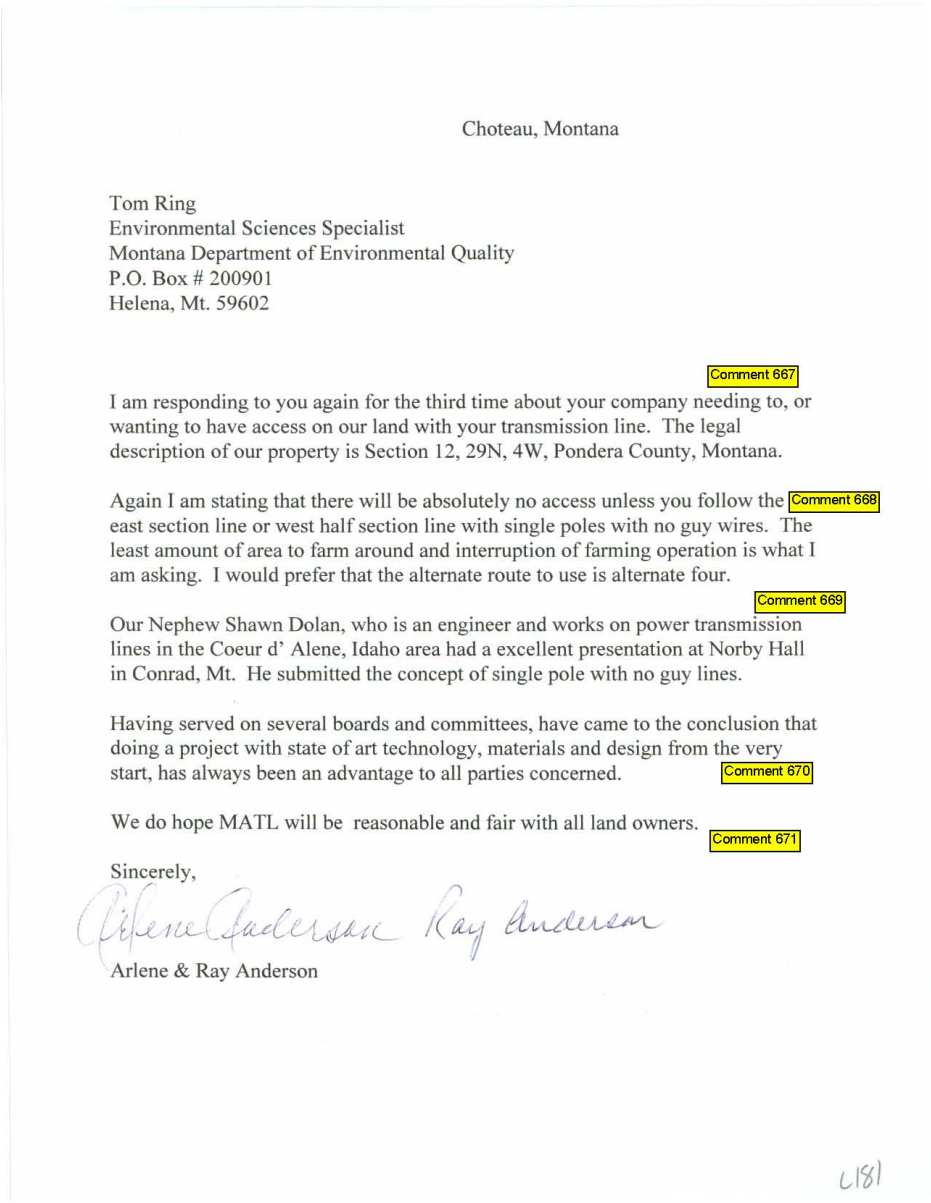
We urge your approval of the MATL application without costly delays that could very well jeopardize the entire project. Your final routing decision should be fair to all parties, MATL and landowners, striking a good balance between what makes sense economically and addresses the most sensitive issues in a responsible and proper manner. Comment 665

A good analogy is, "it's would be like connecting power cables to a huge battery that moves the economic engine of development".Let's move forward and approve the MATL Montana.. Comment 666

L180

We the undersigned support MATL as per the attached letter.

SIGNATURE	ADDRESS
	1025 Main St. Shelby
	P.O. Box 1034 Shelby
	164 White Rd Shelby, MT
	118 Rodeo Dr, Shelby, MT
	PO Box 731 Shelby MT
	720 Marias Ave Shelby, MT
	425 OHaire Blvd Shelby, MT



Choteau, Montana

Tom Ring
Environmental Sciences Specialist
Montana Department of Environmental Quality
P.O. Box # 200901
Helena, Mt. 59602

Comment 667

I am responding to you again for the third time about your company needing to, or wanting to have access on our land with your transmission line. The legal description of our property is Section 12, 29N, 4W, Pondera County, Montana.

Again I am stating that there will be absolutely no access unless you follow the Comment 668 east section line or west half section line with single poles with no guy wires. The least amount of area to farm around and interruption of farming operation is what I am asking. I would prefer that the alternate route to use is alternate four.

Comment 669

Our Nephew Shawn Dolan, who is an engineer and works on power transmission lines in the Coeur d' Alene, Idaho area had a excellent presentation at Norby Hall in Conrad, Mt. He submitted the concept of single pole with no guy lines.

Having served on several boards and committees, have came to the conclusion that doing a project with state of art technology, materials and design from the very start, has always been an advantage to all parties concerned. Comment 670

We do hope MATL will be reasonable and fair with all land owners. Comment 671

Sincerely,

Arlene Anderson Ray Anderson

Arlene & Ray Anderson

L181

Responses 667 and 668: See the discussion in the response to comment 436.

Response 669: Unguyed single poles at angle structures would reduce impacts by removing guy wires that may interfere with farming practices. Unguyed single pole structures would add costs as indicated below. In addition, the agencies recognize that some agricultural producers would choose to sterilize the soil between the poles of an H-frame structure or between the structure and the guy wire anchors to control weeds. Others would choose to establish a more permanent perennial grass cover that would compete with weedy species.

Both the single pole and three pole structures would be classified into three types: small angle, medium angle, and deadend. The unguyed structures would require large foundations with anchor bolts and much larger steel poles to hold the conductor loads. This results in higher costs for unguyed structures as compared to guyed structures. The following estimates are labor and material cost comparisons per structure for the three types:

Single Pole Structure	Guyed	Unguyed
Small Angle	$15,000.00	$ 35,000.00
Medium Angle	$20,000.00	$ 50,000.00
Deadend	$30,000.00	$100,000.00

Three Pole Structure	Guyed	Unguyed
Small Angle	$30,000.00	$ 50,000.00
Medium Angle	$40,000.00	$ 70,000.00
Deadend	$50,000.00	$120,000.00

Source: HDR 2007. Also see the discussion of Farming Issues in the Consolidated Responses section.

Response 670 and 671: Comments noted.

Response 672 to 677: Comments noted.

27 March 2008

Mr. Tom Ring
Department of Environmental Quality
PO Box 200901
Helena, MT 59602

Subject: MATL

Dear Mr. Ring,

Comment 672

First, we would like to thank you again for your support with our on going difficulty with MATL. We appreciated the time you took to support an alternate route away from our home and off our property.

Second, it needs to be stated at no time have we had a positive or "good neighbor" Comment 673 contact from MATL as consistently declared at the meeting in Cut Bank. Every phone call from them was hostile, aggressive and demanding. We were clearly told lies such as, "all of the meetings were over, all the permits have been issued, we have to sign what ever they send us, they will put the power lines anywhere they want, condemn any part of our property they want, and we have nothing to say about this." We disagree with them Comment 674 and will continue to fight for our rights. At the meeting the concern about the additional financial burden for MATL for alternate routes was discussed. How can you equate what is simply pennies on the dollar for a large foreign corporation as compared to the Comment 675 potential billions of profit versus the negative impact on the quality of life on a family and community. We believe it will "cost" us more than MATL if they do not follow an alternate route.

Thirdly, we feel that this is a lose-lose situation for the United States of America, the Comment 676 state of Montana and Glacier county. All of the true benefits go to Canada. They are willing to give some token monetary benefits. But, as a whole it doesn't do anything to decrease our foreign energy dependence. It simply trades one country for another. Would we let Venezuela or Iran run a project like this in the United States of America?

Lastly, the only support we can give this project as we wrote before is to keep it off of our property.

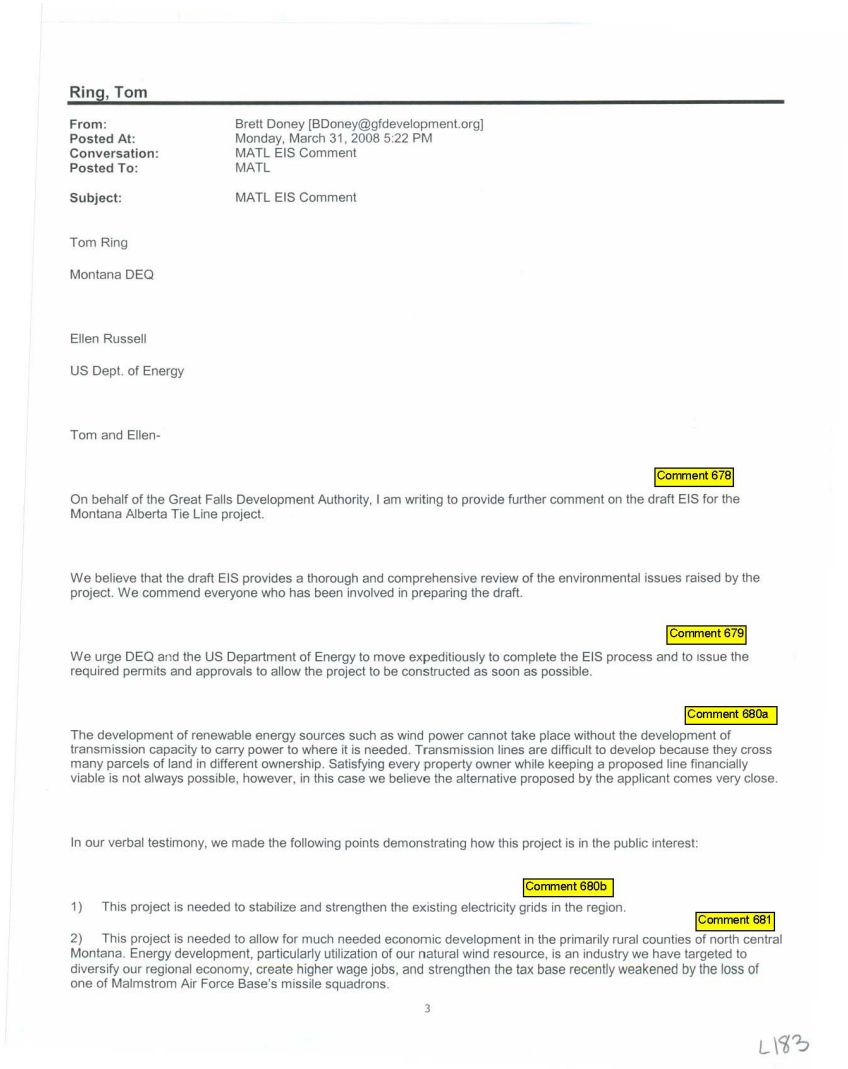
Comment 677

Sincerely,

Joseph J. Karcher / Diane C. Karcher

Joseph J. Karcher Jr. & Diane C. Karcher
PO Box 354
Cut Bank, MT 59427

L182



Ring, Tom

From: Brett Doney [BDoney@gfdevelopment.org]
Posted At: Monday, March 31, 2008 5:22 PM
Conversation: MATL EIS Comment
Posted To: MATL

Subject: MATL EIS Comment

Tom Ring

Montana DEQ

Ellen Russell

US Dept. of Energy

Tom and Ellen-

Comment 678

On behalf of the Great Falls Development Authority, I am writing to provide further comment on the draft EIS for the Montana Alberta Tie Line project.

We believe that the draft EIS provides a thorough and comprehensive review of the environmental issues raised by the project. We commend everyone who has been involved in preparing the draft.

Comment 679

We urge DEQ and the US Department of Energy to move expeditiously to complete the EIS process and to issue the required permits and approvals to allow the project to be constructed as soon as possible.

Comment 680a

The development of renewable energy sources such as wind power cannot take place without the development of transmission capacity to carry power to where it is needed. Transmission lines are difficult to develop because they cross many parcels of land in different ownership. Satisfying every property owner while keeping a proposed line financially viable is not always possible, however, in this case we believe the alternative proposed by the applicant comes very close.

In our verbal testimony, we made the following points demonstrating how this project is in the public interest:

Comment 680b

1) This project is needed to stabilize and strengthen the existing electricity grids in the region.

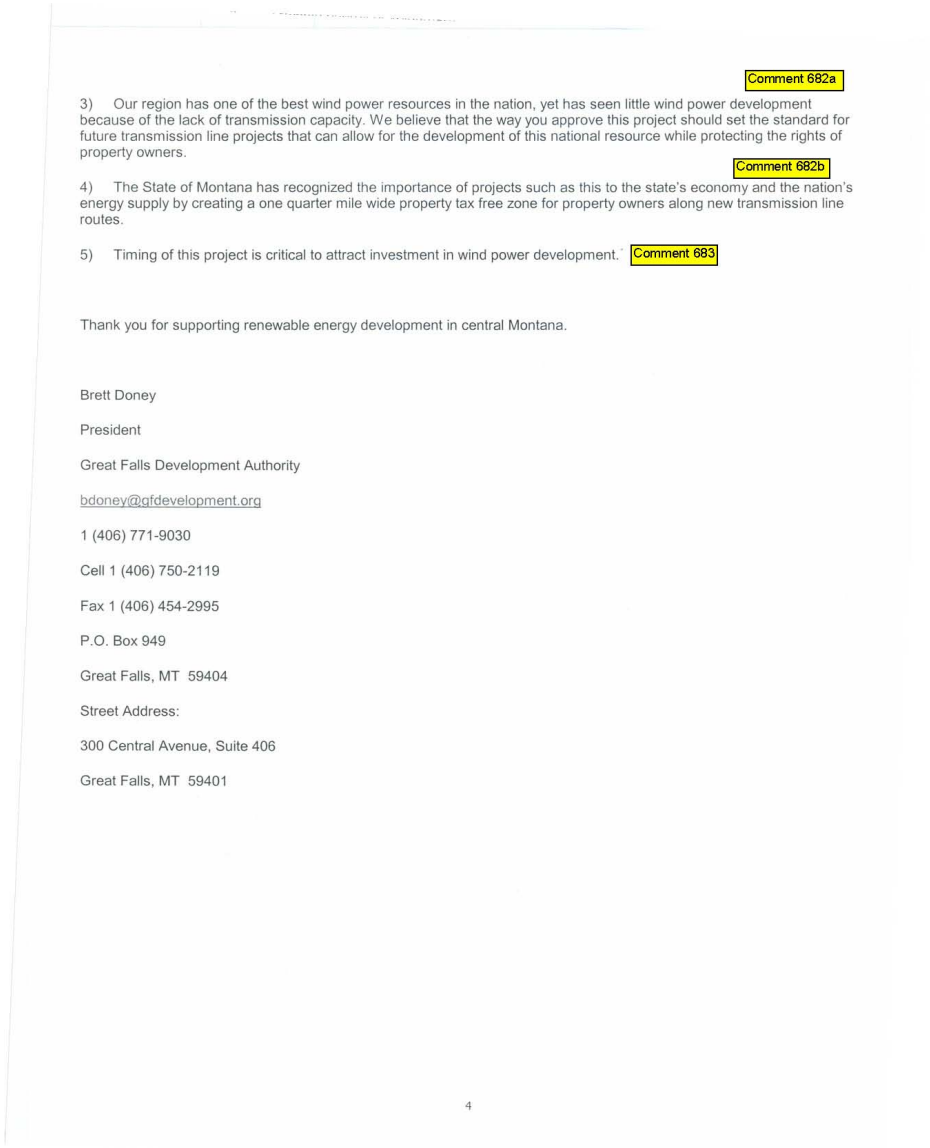
Comment 681

2) This project is needed to allow for much needed economic development in the primarily rural counties of north central Montana. Energy development, particularly utilization of our natural wind resource, is an industry we have targeted to diversify our regional economy, create higher wage jobs, and strengthen the tax base recently weakened by the loss of one of Malmstrom Air Force Base's missile squadrons.

3

L183

Response 678 to 681: Comments noted.



Comment 682a

3) Our region has one of the best wind power resources in the nation, yet has seen little wind power development because of the lack of transmission capacity. We believe that the way you approve this project should set the standard for future transmission line projects that can allow for the development of this national resource while protecting the rights of property owners.

Comment 682b

4) The State of Montana has recognized the importance of projects such as this to the state's economy and the nation's energy supply by creating a one quarter mile wide property tax free zone for property owners along new transmission line routes.

5) Timing of this project is critical to attract investment in wind power development. Comment 683

Thank you for supporting renewable energy development in central Montana.

Brett Doney

President

Great Falls Development Authority

bdoney@gfdevelopment.org

1 (406) 771-9030

Cell 1 (406) 750-2119

Fax 1 (406) 454-2995

P.O. Box 949

Great Falls, MT 59404

Street Address:

300 Central Avenue, Suite 406

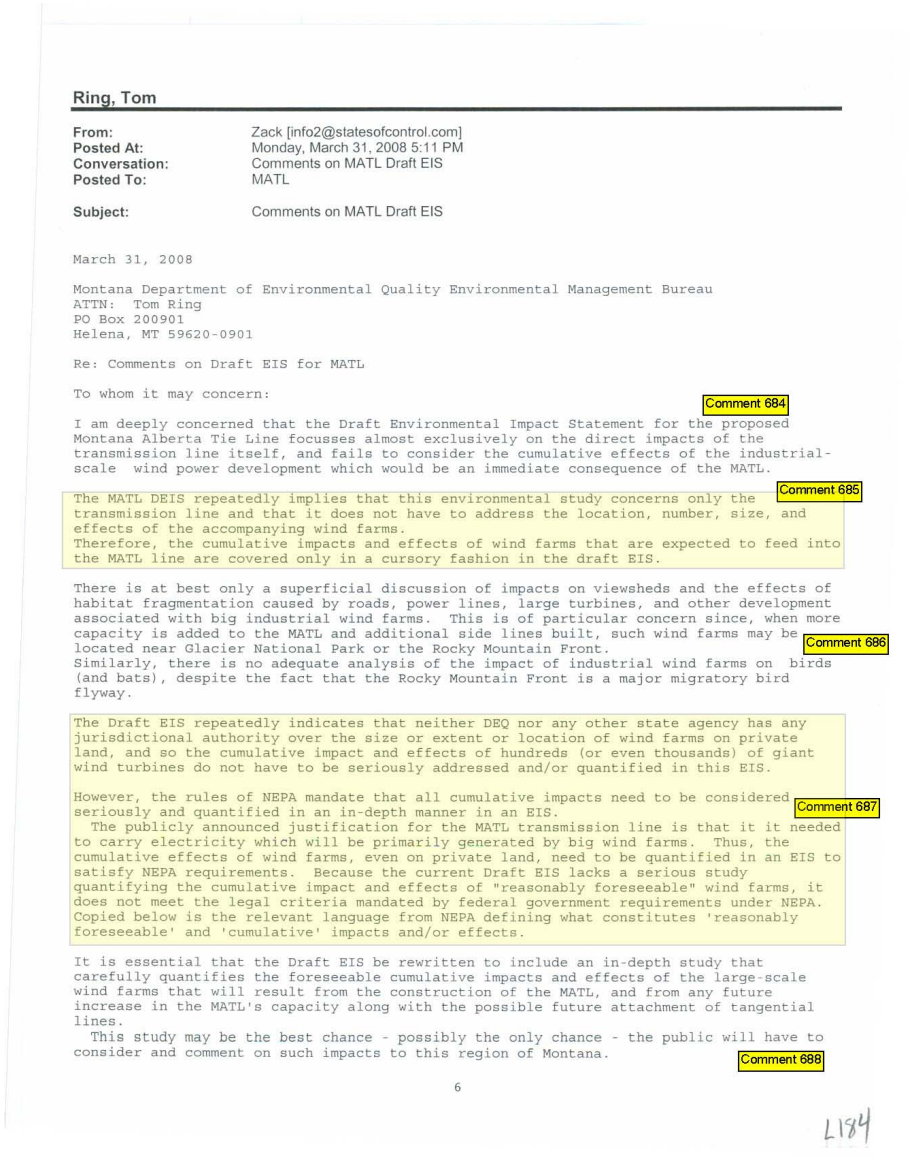
Great Falls, MT 59401

4

Response 682a: Comment noted.

Response 682b: Land that is within 660 feet on either side of the midpoint of right-of-way or easement for a transmission line with a design capacity of 30 megavolt-amperes or greater and constructed after January 1, 2007, is exempt from property taxes under Section 15-6-229, MCA. The exemption does not apply within the boundaries of an incorporated or unincorporated city or town; to a platted and filed subdivision; or to land used for residential, commercial or industrial purposes. Also see the discussion of Tax Issues in the Consolidated Responses section.

Response 683: Comment noted.



Ring, Tom

From: Zack [info2@statesofcontrol.com]
Posted At: Monday, March 31, 2008 5:11 PM
Conversation: Comments on MATL Draft EIS
Posted To: MATL

Subject: Comments on MATL Draft EIS

March 31, 2008

Montana Department of Environmental Quality Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

Re: Comments on Draft EIS for MATL

To whom it may concern:

Comment 684

I am deeply concerned that the Draft Environmental Impact Statement for the proposed Montana Alberta Tie Line focusses almost exclusively on the direct impacts of the transmission line itself, and fails to consider the cumulative effects of the industrial-scale wind power development which would be an immediate consequence of the MATL.

Comment 685

The MATL DEIS repeatedly implies that this environmental study concerns only the transmission line and that it does not have to address the location, number, size, and effects of the accompanying wind farms.
Therefore, the cumulative impacts and effects of wind farms that are expected to feed into the MATL line are covered only in a cursory fashion in the draft EIS.

There is at best only a superficial discussion of impacts on viewsheds and the effects of habitat fragmentation caused by roads, power lines, large turbines, and other development associated with big industrial wind farms. This is of particular concern since, when more capacity is added to the MATL and additional side lines built, such wind farms may be located near Glacier National Park or the Rocky Mountain Front.

Comment 686

Similarly, there is no adequate analysis of the impact of industrial wind farms on birds (and bats), despite the fact that the Rocky Mountain Front is a major migratory bird flyway.

The Draft EIS repeatedly indicates that neither DEQ nor any other state agency has any jurisdictional authority over the size or extent or location of wind farms on private land, and so the cumulative impact and effects of hundreds (or even thousands) of giant wind turbines do not have to be seriously addressed and/or quantified in this EIS.

However, the rules of NEPA mandate that all cumulative impacts need to be considered seriously and quantified in an in-depth manner in an EIS.

Comment 687

The publicly announced justification for the MATL transmission line is that it it needed to carry electricity which will be primarily generated by big wind farms. Thus, the cumulative effects of wind farms, even on private land, need to be quantified in an EIS to satisfy NEPA requirements. Because the current Draft EIS lacks a serious study quantifying the cumulative impact and effects of "reasonably foreseeable" wind farms, it does not meet the legal criteria mandated by federal government requirements under NEPA. Copied below is the relevant language from NEPA defining what constitutes 'reasonably foreseeable' and 'cumulative' impacts and/or effects.

It is essential that the Draft EIS be rewritten to include an in-depth study that carefully quantifies the foreseeable cumulative impacts and effects of the large-scale wind farms that will result from the construction of the MATL, and from any future increase in the MATL's capacity along with the possible future attachment of tangential lines.

This study may be the best chance - possibly the only chance - the public will have to consider and comment on such impacts to this region of Montana.

Comment 688

6

L184

Response 684 and 685: In compliance with NEPA, analysis of the potential cumulative impacts of reasonably foreseeable actions, including wind farms that may use the transmission capacity of the proposed MATL line, is presented in the EIS (see Sections 4.1 to 4.16). Also see the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 686: See the discussion of Wind Farm Issues in the Consolidated Responses section. Additional information on bird and bat mortality from the Judith Gap Energy Center wind farm is included in the discussion of Avian and Wildlife Issues in the Consolidated Responses section and in the EIS, Section 4.9.

Response 687 and 688: In compliance with NEPA, analysis of the potential cumulative impacts of reasonably foreseeable actions, including wind farms that may use the transmission capacity of the proposed MATL line, is in Sections 4.1 to 4.16. The cumulative impacts analysis considers the impacts of wind farm developments that might be built to use the full potential transmission capacity of the MATL line. The analysis is based on the best available information respecting the potential sizes, designs, and locations of reasonably foreseeable future wind farms. See the discussions of Wind Farm Issues and Legal and Regulatory Issues in the Consolidated Responses section.

Comment 689

Wind power has the potential to make a remarkable contribution to Montana's economy and to provide a wonderful, carbon-free source of energy. However, it must be done right, so that the environmental, aesthetic, and social costs do not outweigh the many potential benefits. There are some places where industrial wind farms simply do not belong. The Rocky Mountain Front is one of those places.

Sincerely,

Zack Winestine
92 Horatio St.
New York, NY 10014

PO Box 351
Augusta, MT 59410

NEPA Requirements to be studied in an EIS:

Sec. 1508.7 Cumulative impact.
"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Sec. 1508.8 Effects.
"Effects" include:
(a) Direct effects, which are caused by the action and occur at the same time and place.
(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.
Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

7

Response 689: Comment noted.

Ring, Tom

From: Brenda Schilling [cbhsbs@cutbankschools.net]
Posted At: Monday, March 31, 2008 10:02 AM
Conversation: Environmental Inpact Statement
Posted To: MATL

Subject: Environmental Inpact Statement

Dear Mr. Ring:

Comment 690

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Montana Alberta Tie Transmission Line. I am a teacher in the Cut Bank School system, and would like to offer my full support of the electric transmission line proposed by MATL. I am originally from the Wolf Point area, which has been devastated by business closures and lack of economic stimulus. I want my own children, as well as my students, to have a hometown to return to in the years to come, and I firmly believe this transmission line to be a key in the economic progress in our community, as well as the Golden Triangle area.

I have countless students who are in favor of this project. If I can provide signatures, please let me know. Comment 691

Sincerely,

Brenda Schilling, Educator

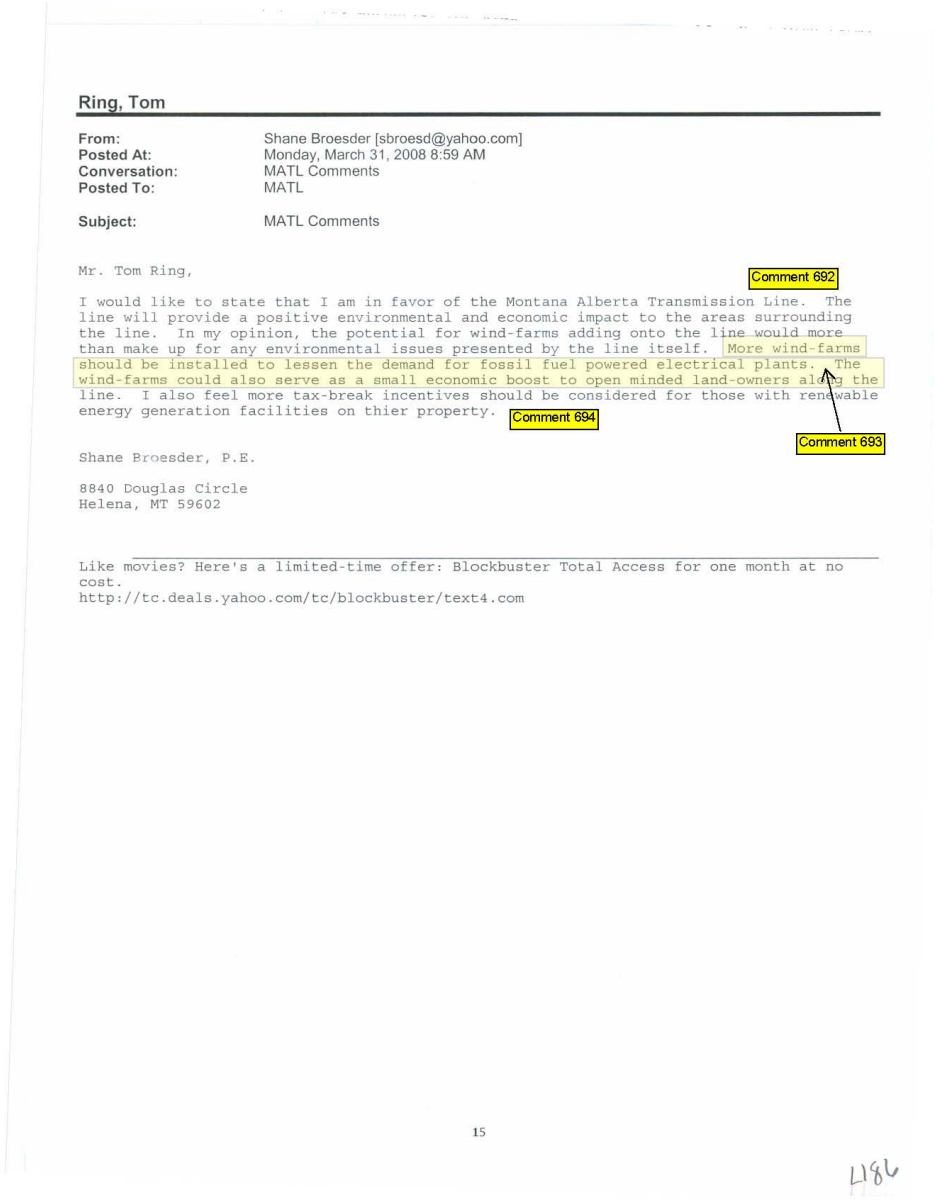
Cut Bank Schools

14

L185

Response 690: See the discussion of Socioeconomic Issues in the Consolidated Responses section.

Response 691: Comment noted.



Ring, Tom

From: Shane Broesder [sbroesd@yahoo.com]
Posted At: Monday, March 31, 2008 8:59 AM
Conversation: MATL Comments
Posted To: MATL

Subject: MATL Comments

Mr. Tom Ring,

Comment 692

I would like to state that I am in favor of the Montana Alberta Transmission Line. The line will provide a positive environmental and economic impact to the areas surrounding the line. In my opinion, the potential for wind-farms adding onto the line would more than make up for any environmental issues presented by the line itself. More wind-farms should be installed to lessen the demand for fossil fuel powered electrical plants. The wind-farms could also serve as a small economic boost to open minded land-owners along the line. I also feel more tax-break incentives should be considered for those with renewable energy generation facilities on thier property.

Comment 694

Comment 693

Shane Broesder, P.E.

8840 Douglas Circle
Helena, MT 59602

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http://tc.deals.yahoo.com/tc/blockbuster/text4.com

15

L186

Response 692 to 694: Comments noted.

Ring, Tom

From: Vernon Berger [iceberg@northerntel.net]
Posted At: Sunday, March 30, 2008 9:35 PM
Conversation: MATL LINE
Posted To: MATL

Subject: MATL LINE

Tom Ring

Environmental Sciences Specialist

Montana Department of Environmental Quality

Helena MT . 59602

Comment 695

I strongly support the pr.oposed MATL line. Alt . 2 runs through two miles of my farmland and I believe it will be a great asset to myself and the complete area.

The poles will be a nusance to farm around but not any more than the gas wells and pipes we now have to farm around.

Comment 696

Vernon C. Berger

258 Berger RD

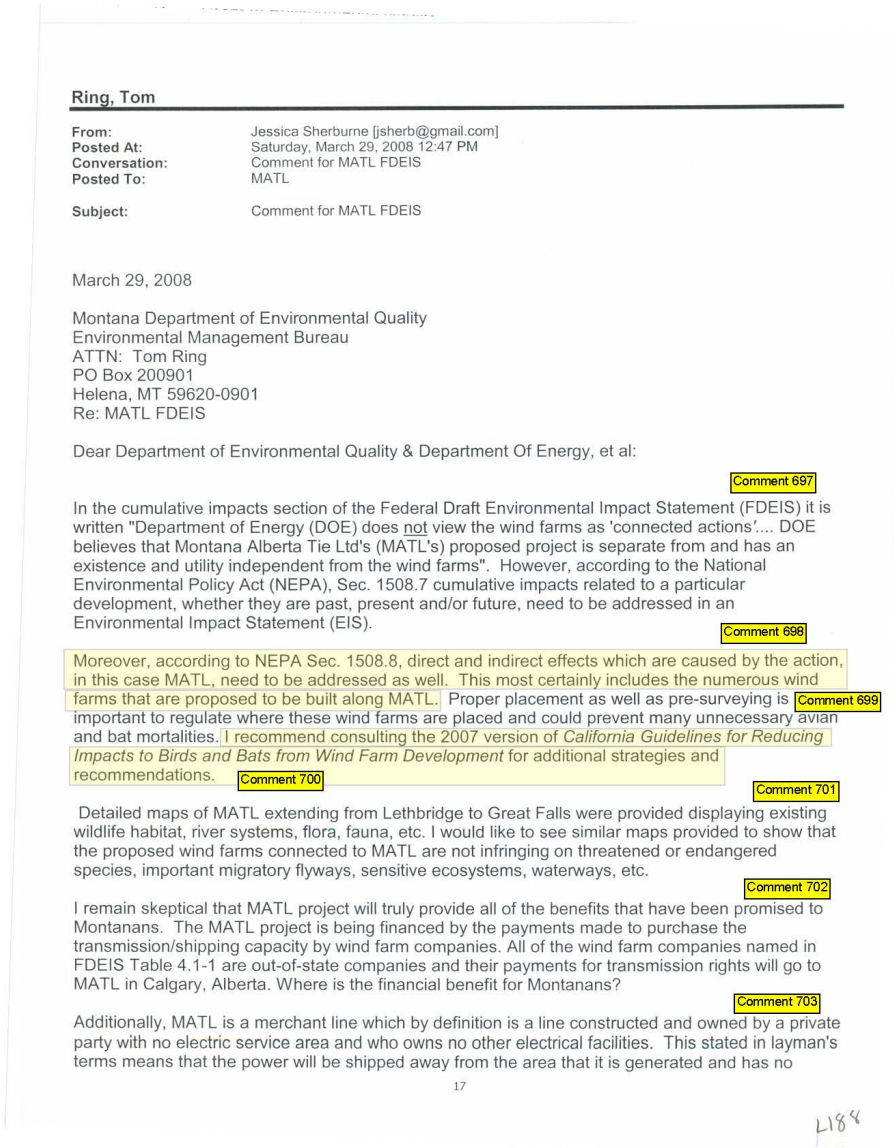
P. O. Box 457

Cut Bank, Mt. 59427

16

487

Response 695 and 696: Comments noted.



Ring, Tom

From: Jessica Sherburne [jsherb@gmail.com]
Posted At: Saturday, March 29, 2008 12:47 PM
Conversation: Comment for MATL FDEIS
Posted To: MATL

Subject: Comment for MATL FDEIS

March 29, 2008

Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901
Re: MATL FDEIS

Dear Department of Environmental Quality & Department Of Energy, et al:

Comment 697

In the cumulative impacts section of the Federal Draft Environmental Impact Statement (FDEIS) it is written "Department of Energy (DOE) does not view the wind farms as 'connected actions'.... DOE believes that Montana Alberta Tie Ltd's (MATL's) proposed project is separate from and has an existence and utility independent from the wind farms". However, according to the National Environmental Policy Act (NEPA), Sec. 1508.7 cumulative impacts related to a particular development, whether they are past, present and/or future, need to be addressed in an Environmental Impact Statement (EIS).

Comment 698

Moreover, according to NEPA Sec. 1508.8, direct and indirect effects which are caused by the action, in this case MATL, need to be addressed as well. This most certainly includes the numerous wind farms that are proposed to be built along MATL. Proper placement as well as pre-surveying is important to regulate where these wind farms are placed and could prevent many unnecessary avian and bat mortalities. I recommend consulting the 2007 version of *California Guidelines for Reducing Impacts to Birds and Bats from Wind Farm Development* for additional strategies and recommendations.

Comment 699

Comment 700

Comment 701

Detailed maps of MATL extending from Lethbridge to Great Falls were provided displaying existing wildlife habitat, river systems, flora, fauna, etc. I would like to see similar maps provided to show that the proposed wind farms connected to MATL are not infringing on threatened or endangered species, important migratory flyways, sensitive ecosystems, waterways, etc.

Comment 702

I remain skeptical that MATL project will truly provide all of the benefits that have been promised to Montanans. The MATL project is being financed by the payments made to purchase the transmission/shipping capacity by wind farm companies. All of the wind farm companies named in FDEIS Table 4.1-1 are out-of-state companies and their payments for transmission rights will go to MATL in Calgary, Alberta. Where is the financial benefit for Montanans?

Comment 703

Additionally, MATL is a merchant line which by definition is a line constructed and owned by a private party with no electric service area and who owns no other electrical facilities. This stated in layman's terms means that the power will be shipped away from the area that it is generated and has no

17

L184

Response 697: As the comment indicates, wind farms that may use the transmission capacity of the proposed MATL line are considered to be reasonably foreseeable actions that may result in cumulative impacts. Analysis of potential cumulative impacts is presented in Sections 4.1 to 4.16. See the discussion of Wind Farm Issues and Legal and Regulatory Issues in the Consolidated Responses section.

Response 698: See the discussion of the analysis of impacts in Chapters 3 and 4.

Response 699 and 700: Neither DEQ nor DOE has a regulatory role in siting wind farms nor do the agencies have regulatory jurisdiction over wind farm development or operation. The agencies were aware of the 2007 draft California guidelines while preparing the Draft EIS. These guidelines are now finalized in California.

Response 701: The detailed information requested in the comment would require specific knowledge of the locations of proposed wind farms. This information is not available. See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 702: See the discussion of Economic Issues in the Consolidated Responses section.

Response 703: See the discussion of Line Issues and Economic Issues in the Consolidated Responses section and the responses to comments 166, 167, and 168.

Comment 703 (Cont.)

capacity to be used locally. It appears that nearly all, if not all, of the power generated from this project is going directly out of state. Montana already generates 2x as much power as it needs. Is it wise to allow thousands of acres of Montana cropland along the Rocky Mountain front to be devoted to a project headed by out-of-state developers (MATL and industrial wind farms) who also happen to be the two primary beneficiaries of the income?

Please go back and quantify the cumulative effects, direct and indirect, of the proposed MATL project, in a new EIS, specifically including wind farms that are proposed to line MATL. I am attaching the full versions of the aforementioned NEPA Sections at the end of this letter. Comment 704

Sincerely,

Jessie Sherburne
221 1/2 W. Kent Ave.
Missoula, MT 59801

NEPA Requirements to be studied in an EIS:

Sec. 1508.7 Cumulative impact.

"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Sec. 1508.8 Effects.

"Effects" include:

(a) Direct effects, which are caused by the action and occur at the same time and place.

(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

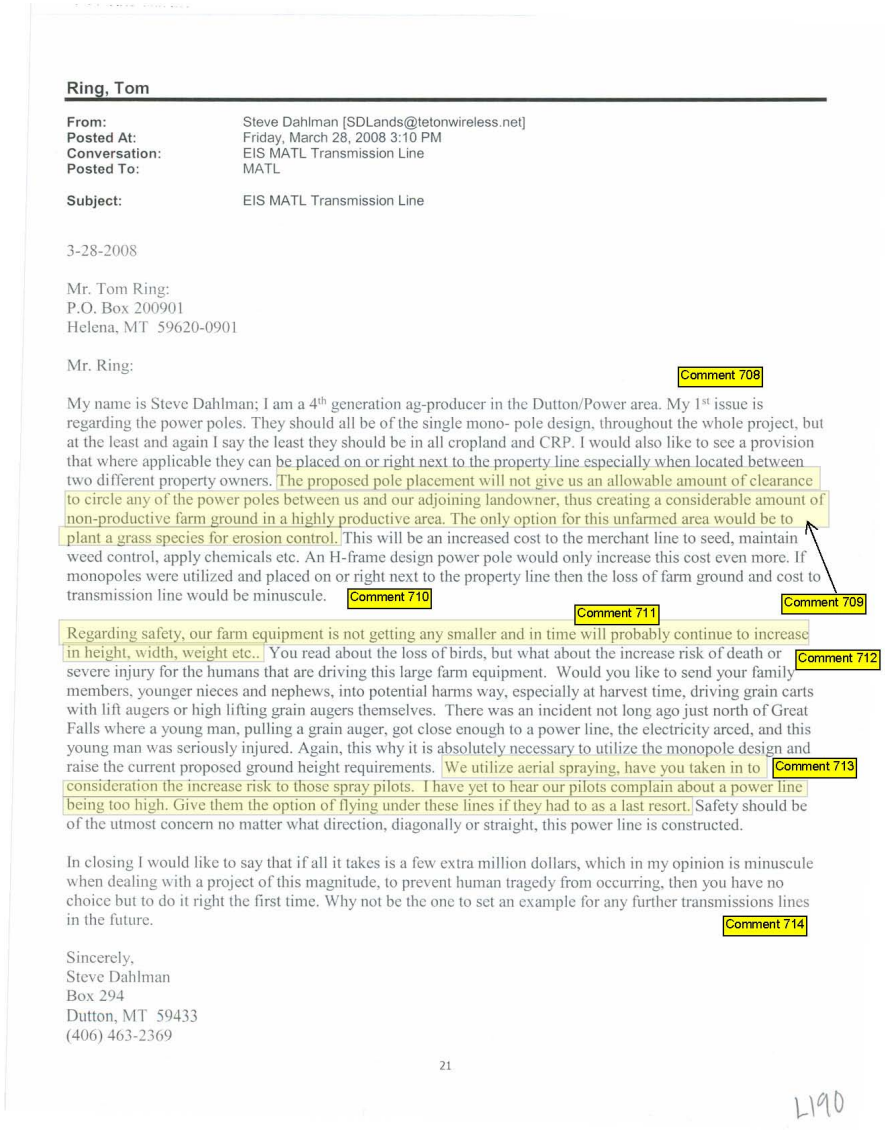
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Response 704: In compliance with NEPA, analysis of the potential cumulative impacts of reasonably foreseeable actions, including wind farms that may use the transmission capacity of the proposed MATL line, is in Sections 4.1 to 4.16. The cumulative impacts analysis considers the impacts of wind farm developments that might be built to use the full potential transmission capacity of the MATL line. See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 705: See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 706: Comment noted.

Response 707: See the discussion in Chapter 4 and the discussion of Wind Farm Issues in the Consolidated Responses section.



Ring, Tom

From: Steve Dahlman [SDLands@tetonwireless.net]
Posted At: Friday, March 28, 2008 3:10 PM
Conversation: EIS MATL Transmission Line
Posted To: MATL

Subject: EIS MATL Transmission Line

3-28-2008

Mr. Tom Ring:
P.O. Box 200901
Helena, MT 59620-0901

Mr. Ring:

Comment 708

My name is Steve Dahlman; I am a 4th generation ag-producer in the Dutton/Power area. My 1st issue is regarding the power poles. They should all be of the single mono- pole design, throughout the whole project, but at the least and again I say the least they should be in all cropland and CRP. I would also like to see a provision that where applicable they can be placed on or right next to the property line especially when located between two different property owners. The proposed pole placement will not give us an allowable amount of clearance to circle any of the power poles between us and our adjoining landowner, thus creating a considerable amount of non-productive farm ground in a highly productive area. The only option for this unfarmed area would be to plant a grass species for erosion control. This will be an increased cost to the merchant line to seed, maintain weed control, apply chemicals etc. An H-frame design power pole would only increase this cost even more. If monopoles were utilized and placed on or right next to the property line then the loss of farm ground and cost to transmission line would be minuscule.

Comment 710

Comment 709

Comment 711

Regarding safety, our farm equipment is not getting any smaller and in time will probably continue to increase in height, width, weight etc.. You read about the loss of birds, but what about the increase risk of death or severe injury for the humans that are driving this large farm equipment. Would you like to send your family members, younger nieces and nephews, into potential harms way, especially at harvest time, driving grain carts with lift augers or high lifting grain augers themselves. There was an incident not long ago just north of Great Falls where a young man, pulling a grain auger, got close enough to a power line, the electricity arced, and this young man was seriously injured. Again, this why it is absolutely necessary to utilize the monopole design and raise the current proposed ground height requirements. We utilize aerial spraying, have you taken in to consideration the increase risk to those spray pilots. I have yet to hear our pilots complain about a power line being too high. Give them the option of flying under these lines if they had to as a last resort. Safety should be of the utmost concern no matter what direction, diagonally or straight, this power line is constructed.

Comment 712

Comment 713

In closing I would like to say that if all it takes is a few extra million dollars, which in my opinion is minuscule when dealing with a project of this magnitude, to prevent human tragedy from occurring, then you have no choice but to do it right the first time. Why not be the one to set an example for any further transmissions lines in the future.

Comment 714

Sincerely,
Steve Dahlman
Box 294
Dutton, MT 59433
(406) 463-2369

21

L190

Response 708: Location of structures on property lines would help reduce interference to farming activities so long as there is not an existing road located along a property line. Movement of farm equipment along a road may be impeded by siting on a property line. Also see the response to comment 85.

Response 709: The optimum placement for a single pole would be along a property line if there is no road present. Locating a single pole or H-frame structure inside a field but less than the toolbar or sprayer width from the edge of a field could cause a larger area to be taken out of production than moving the single pole or H-frame structure farther away from the field edge and allowing farming equipment to work around a structure (de Waal Malefyt 1979). This principle would apply whether a single pole or an H-frame structure would be used.

Response 710: Comment noted. Today's line clearances may not be adequate in the future as the size of equipment increases.

Response 711 and 712: See the discussions of Safety Issues in the Consolidated Responses section and Section 3.4.

Response 713: Potential impacts on aerial spraying are discussed in Section 3.1 and were a consideration in developing local routing options (See the discussion in Section 2.6).

Response 714: Comment noted.

Ring, Tom

From: Bonnie Kronebusch [bpkrone@3riversdbs.net]
Posted At: Thursday, March 27, 2008 5:21 PM
Conversation: MATL Comment:attn. Tom Ring
Posted To: MATL

Subject: MATL Comment:attn. Tom Ring

To whom this may concern: Comment 715

I am writing in support of the MATL power line. Because I am involved in our farming operation, I feel the construction of this power line should follow the boundaries of the land and the single pole construction would be beneficial to any farmers whose land will be used for this project.

We need this line for wind power projects. Comment 716

I appreciate your consideration about this issue.

Sincerely, Bonnie J. Kronebusch; 8206 Old Shelby Rd., Conrad, MT 59425.

24

491

Response 715 and 716: Comments noted.

Ring, Tom

From: dmuenchphoto@aol.com
Posted At: Thursday, March 27, 2008 9:45 AM
Conversation: MATL proposal
Posted To: MATL

Subject: MATL proposal

Comment 717

I want to go on record, please, with my feelings about the MATL proposal. Montana's Rocky Mountain Front is one of the most specail undeveloped and uncluttered landscapes in North America. A lot of people have fought long and hard to keep it that way. And, while I support alternative energy, I would rather not see big wind farms built anywhere near The Front.

Thank you so much.

Sincerely,

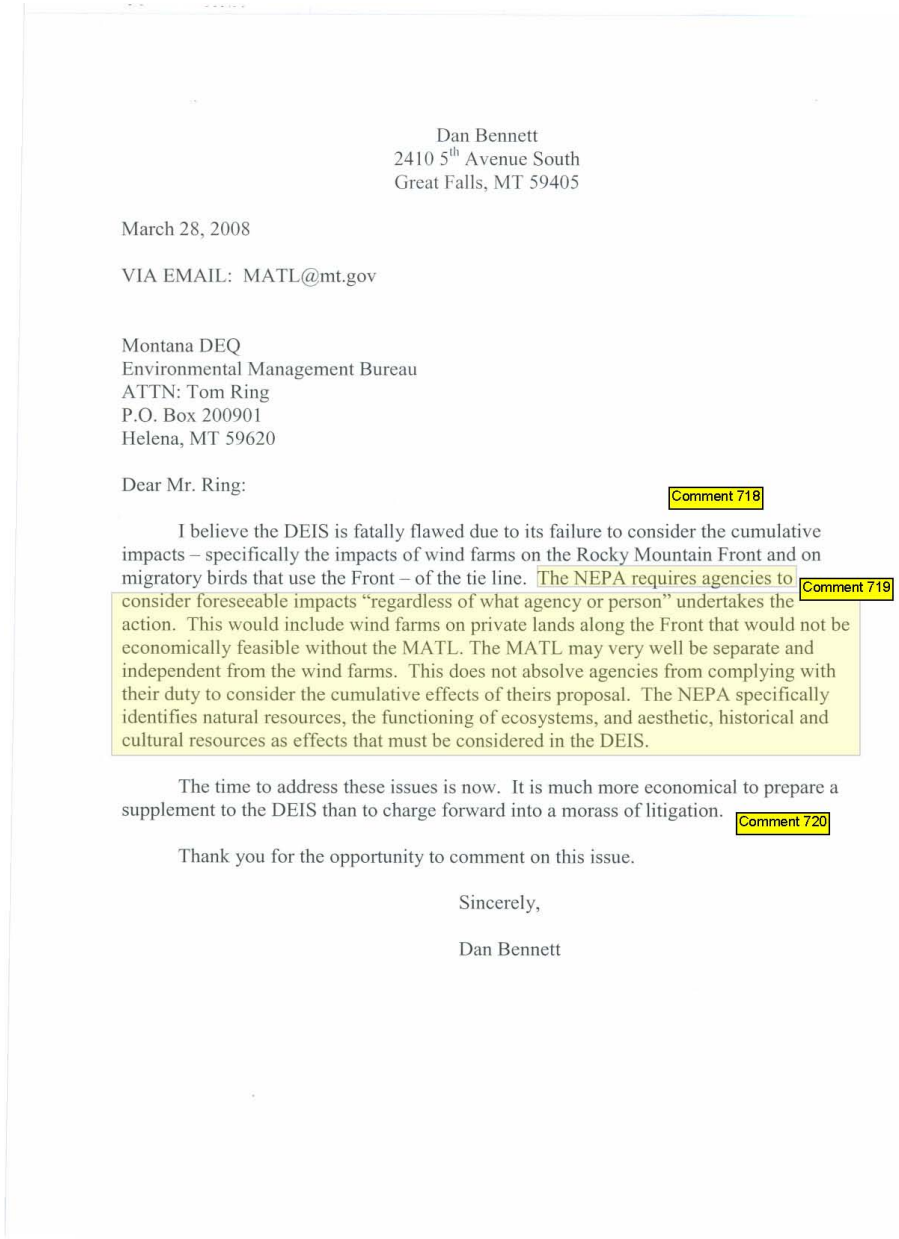
Ruth Rudner
Harrison, Montana & Corrales, New Mexico

Planning your summer road trip? Check out AOL Travel Guides.

25

4192

Response 717: See the discussions of Wind Farm Issues and Visual Issues in the Consolidated Responses section.



Dan Bennett
2410 5th Avenue South
Great Falls, MT 59405

March 28, 2008

VIA EMAIL: MATL@mt.gov

Montana DEQ
Environmental Management Bureau
ATTN: Tom Ring
P.O. Box 200901
Helena, MT 59620

Dear Mr. Ring:

Comment 718

I believe the DEIS is fatally flawed due to its failure to consider the cumulative impacts – specifically the impacts of wind farms on the Rocky Mountain Front and on migratory birds that use the Front – of the tie line. The NEPA requires agencies to consider foreseeable impacts "regardless of what agency or person" undertakes the action. This would include wind farms on private lands along the Front that would not be economically feasible without the MATL. The MATL may very well be separate and independent from the wind farms. This does not absolve agencies from complying with their duty to consider the cumulative effects of theirs proposal. The NEPA specifically identifies natural resources, the functioning of ecosystems, and aesthetic, historical and cultural resources as effects that must be considered in the DEIS.

Comment 719

The time to address these issues is now. It is much more economical to prepare a supplement to the DEIS than to charge forward into a morass of litigation.

Comment 720

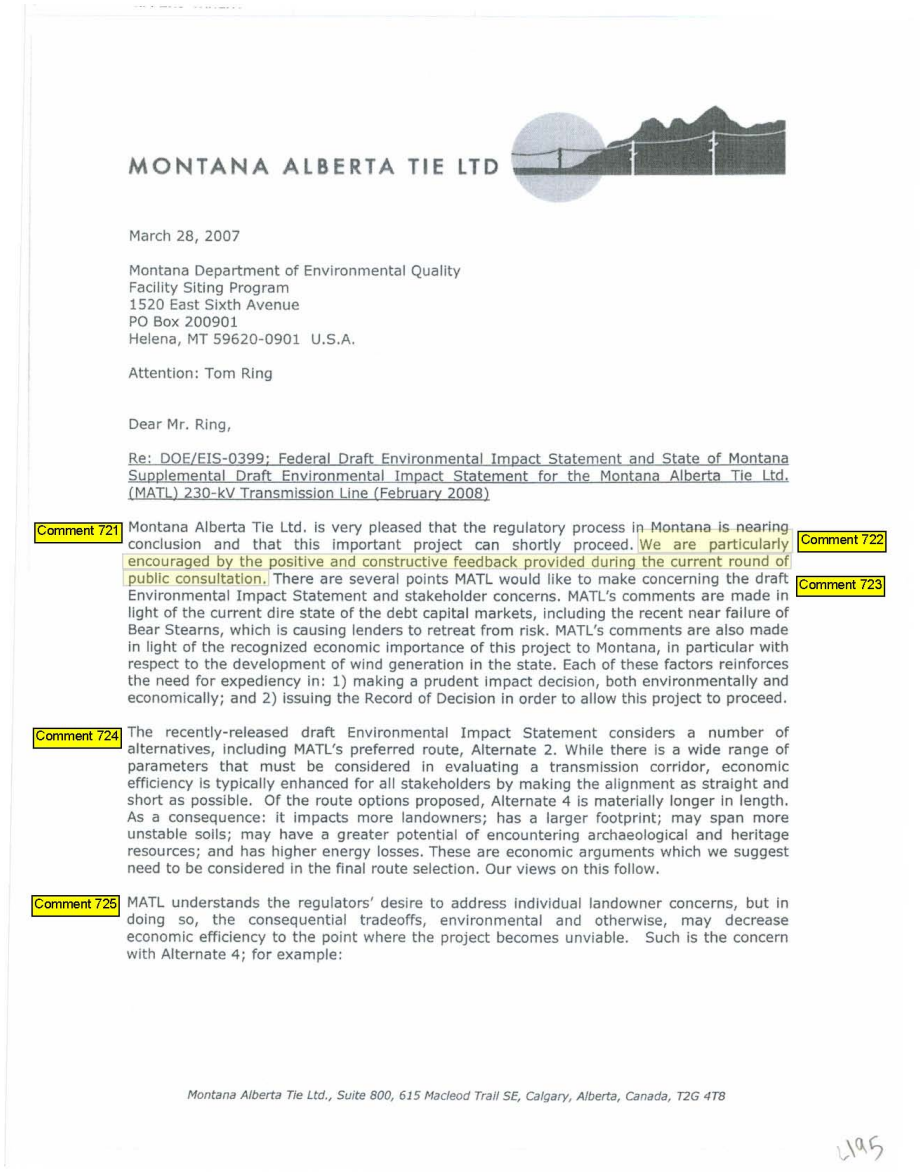
Thank you for the opportunity to comment on this issue.

Sincerely,

Dan Bennett

Response 718: See the discussion of Wind Farm Issues in the Consolidated Responses section and Chapter 4 for a discussion of the cumulative impacts.

Responses 719 and 720: In compliance with NEPA, analysis of the potential cumulative impacts of reasonably foreseeable actions, including wind farms that may use the transmission capacity of the proposed MATL line, is in Sections 4.1 to 4.16. The cumulative impacts analysis considers the impacts of wind farm developments that might be built to use the full potential transmission capacity of the MATL line. The analysis is based on the best available information respecting the potential sizes, designs, and locations of reasonably foreseeable future wind farms. See the discussions of Wind Farm Issues and Visual Issues in the Consolidated Responses section.



MONTANA ALBERTA TIE LTD

March 28, 2007

Montana Department of Environmental Quality
Facility Siting Program
1520 East Sixth Avenue
PO Box 200901
Helena, MT 59620-0901 U.S.A.

Attention: Tom Ring

Dear Mr. Ring,

Re: DOE/EIS-0399; Federal Draft Environmental Impact Statement and State of Montana Supplemental Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (February 2008)

Comment 721 Montana Alberta Tie Ltd. is very pleased that the regulatory process in Montana is nearing conclusion and that this important project can shortly proceed. We are particularly encouraged by the positive and constructive feedback provided during the current round of public consultation. There are several points MATL would like to make concerning the draft Environmental Impact Statement and stakeholder concerns. MATL's comments are made in light of the current dire state of the debt capital markets, including the recent near failure of Bear Stearns, which is causing lenders to retreat from risk. MATL's comments are also made in light of the recognized economic importance of this project to Montana, in particular with respect to the development of wind generation in the state. Each of these factors reinforces the need for expediency in: 1) making a prudent impact decision, both environmentally and economically; and 2) issuing the Record of Decision in order to allow this project to proceed.

Comment 722

Comment 723

Comment 724 The recently-released draft Environmental Impact Statement considers a number of alternatives, including MATL's preferred route, Alternate 2. While there is a wide range of parameters that must be considered in evaluating a transmission corridor, economic efficiency is typically enhanced for all stakeholders by making the alignment as straight and short as possible. Of the route options proposed, Alternate 4 is materially longer in length. As a consequence: it impacts more landowners; has a larger footprint; may span more unstable soils; may have a greater potential of encountering archaeological and heritage resources; and has higher energy losses. These are economic arguments which we suggest need to be considered in the final route selection. Our views on this follow.

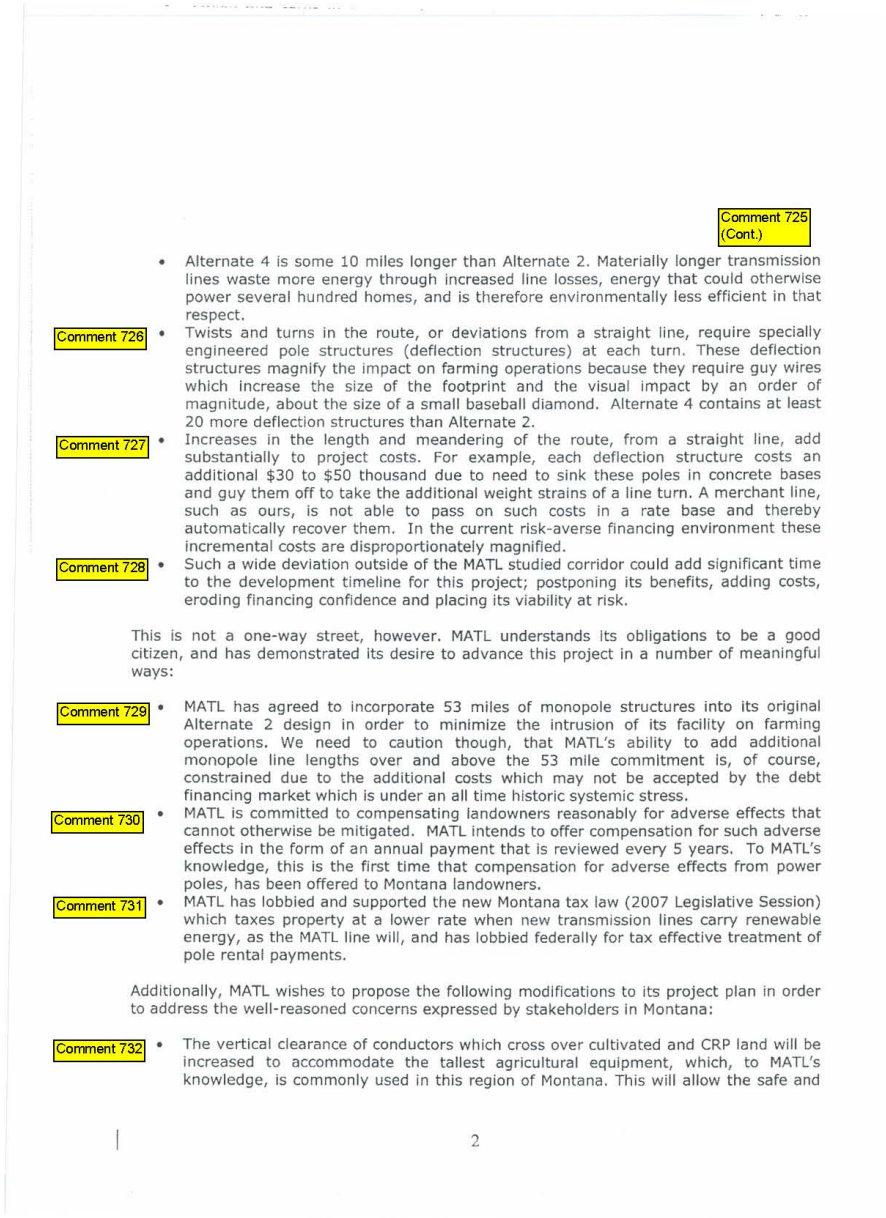
Comment 725 MATL understands the regulators' desire to address individual landowner concerns, but in doing so, the consequential tradeoffs, environmental and otherwise, may decrease economic efficiency to the point where the project becomes unviable. Such is the concern with Alternate 4; for example:

Montana Alberta Tie Ltd., Suite 800, 615 Macleod Trail SE, Calgary, Alberta, Canada, T2G 4T8

L125

Response 721: Comment noted. However, it is premature to conclude that a decision has been made by the DEQ that would allow the project to proceed. Such a decision cannot be made by DEQ for at least 15 days following publication of the EIS and by DOE for at least 30 days following publication of EPA's notice of availability of the Final EIS in the *Federal Register*.

Response 722 to 725: Comments noted.



Comment 725 (Cont.)

- Alternate 4 is some 10 miles longer than Alternate 2. Materially longer transmission lines waste more energy through increased line losses, energy that could otherwise power several hundred homes, and is therefore environmentally less efficient in that respect.

Comment 726

- Twists and turns in the route, or deviations from a straight line, require specially engineered pole structures (deflection structures) at each turn. These deflection structures magnify the impact on farming operations because they require guy wires which increase the size of the footprint and the visual impact by an order of magnitude, about the size of a small baseball diamond. Alternate 4 contains at least 20 more deflection structures than Alternate 2.

Comment 727

- Increases in the length and meandering of the route, from a straight line, add substantially to project costs. For example, each deflection structure costs an additional $30 to $50 thousand due to need to sink these poles in concrete bases and guy them off to take the additional weight strains of a line turn. A merchant line, such as ours, is not able to pass on such costs in a rate base and thereby automatically recover them. In the current risk-averse financing environment these incremental costs are disproportionately magnified.

Comment 728

- Such a wide deviation outside of the MATL studied corridor could add significant time to the development timeline for this project; postponing its benefits, adding costs, eroding financing confidence and placing its viability at risk.

This is not a one-way street, however. MATL understands its obligations to be a good citizen, and has demonstrated its desire to advance this project in a number of meaningful ways:

Comment 729

- MATL has agreed to incorporate 53 miles of monopole structures into its original Alternate 2 design in order to minimize the intrusion of its facility on farming operations. We need to caution though, that MATL's ability to add additional monopole line lengths over and above the 53 mile commitment is, of course, constrained due to the additional costs which may not be accepted by the debt financing market which is under an all time historic systemic stress.

Comment 730

- MATL is committed to compensating landowners reasonably for adverse effects that cannot otherwise be mitigated. MATL intends to offer compensation for such adverse effects in the form of an annual payment that is reviewed every 5 years. To MATL's knowledge, this is the first time that compensation for adverse effects from power poles, has been offered to Montana landowners.

Comment 731

- MATL has lobbied and supported the new Montana tax law (2007 Legislative Session) which taxes property at a lower rate when new transmission lines carry renewable energy, as the MATL line will, and has lobbied federally for tax effective treatment of pole rental payments.

Additionally, MATL wishes to propose the following modifications to its project plan in order to address the well-reasoned concerns expressed by stakeholders in Montana:

Comment 732

- The vertical clearance of conductors which cross over cultivated and CRP land will be increased to accommodate the tallest agricultural equipment, which, to MATL's knowledge, is commonly used in this region of Montana. This will allow the safe and

2

Response 726: Impacts on farming and visual resources are discussed in Sections 3.1 and 3.15, respectively. Although structures with guy wires would increase the size of the footprint compared to non-guyed structures, the guy wires do not substantially contribute to increased visual impact due to their small diameter and inconspicuous nature compared to the structures and conductors. The agencies used proximity of the line (its structures and conductors) to residences, recreation areas, and roads as the key factor influencing magnitude of visual impact.

Response 727: Comment noted. DEQ will weigh costs and benefits of all parties in the EIS and in its siting determination.

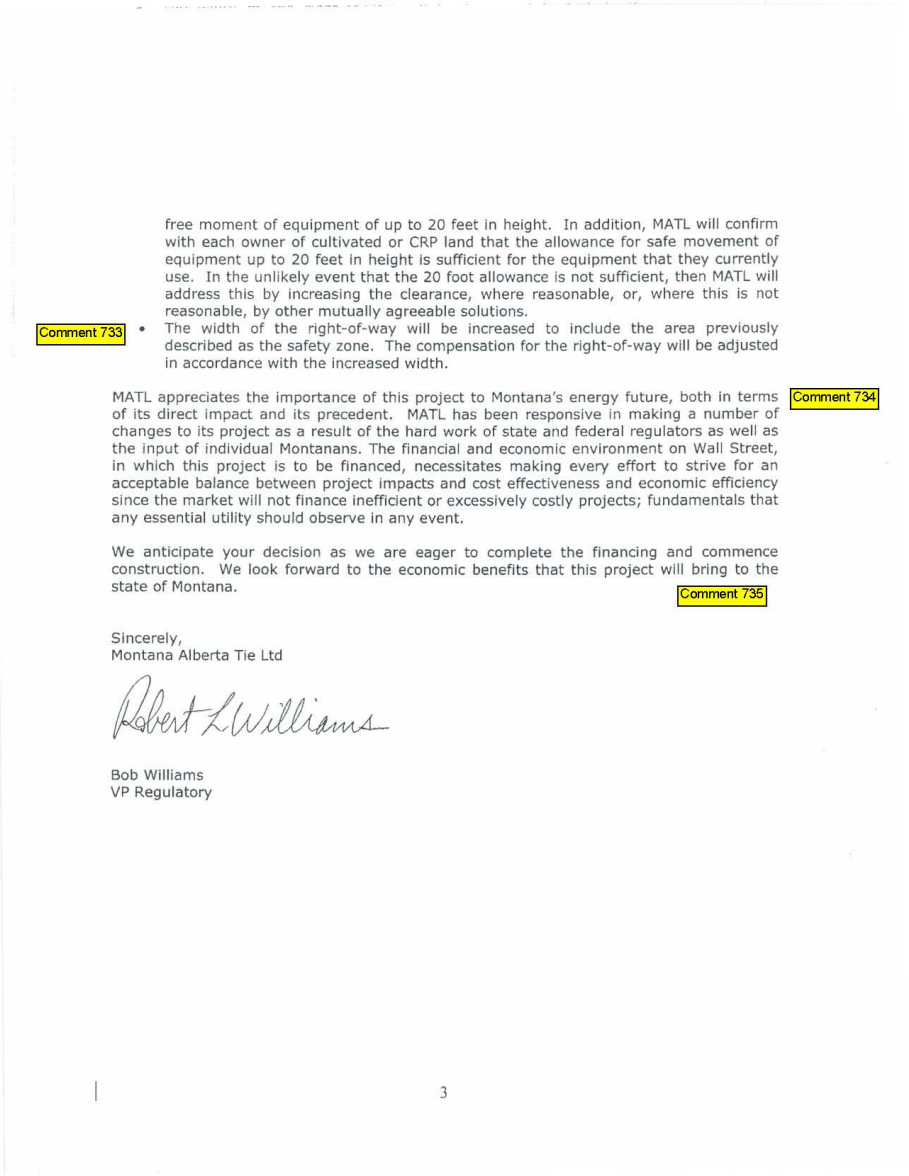
Response 728: Comment noted. All alternatives identified in the EIS fall within the study area identified by MATL. See the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

Response 729: MATL has changed its proposal and now would use monopoles on about 56 miles of line crossing cropland or CRP on the diagonal. See the discussion in Section 1.3.1.

Response 730: MATL has changed its proposed compensation package. See the discussion in Sections 2.3 and 3.13.2. DEQ is not aware of any other Montana utilities or electric cooperatives that are making annual per pole payments to farmers.

Response 731: Comment noted. See the discussion of Tax Issues in the Consolidated Responses section.

Response 732: The EIS has been revised to reflect the changes to MATL's MFSA application. See the revised discussion in Section 2.3, and the discussion of Safety Issues in the Consolidated Responses section.



free moment of equipment of up to 20 feet in height. In addition, MATL will confirm with each owner of cultivated or CRP land that the allowance for safe movement of equipment up to 20 feet in height is sufficient for the equipment that they currently use. In the unlikely event that the 20 foot allowance is not sufficient, then MATL will address this by increasing the clearance, where reasonable, or, where this is not reasonable, by other mutually agreeable solutions.

Comment 733 • The width of the right-of-way will be increased to include the area previously described as the safety zone. The compensation for the right-of-way will be adjusted in accordance with the increased width.

MATL appreciates the importance of this project to Montana's energy future, both in terms of its direct impact and its precedent. MATL has been responsive in making a number of changes to its project as a result of the hard work of state and federal regulators as well as the input of individual Montanans. The financial and economic environment on Wall Street, in which this project is to be financed, necessitates making every effort to strive for an acceptable balance between project impacts and cost effectiveness and economic efficiency since the market will not finance inefficient or excessively costly projects; fundamentals that any essential utility should observe in any event. Comment 734

We anticipate your decision as we are eager to complete the financing and commence construction. We look forward to the economic benefits that this project will bring to the state of Montana. Comment 735

Sincerely,
Montana Alberta Tie Ltd

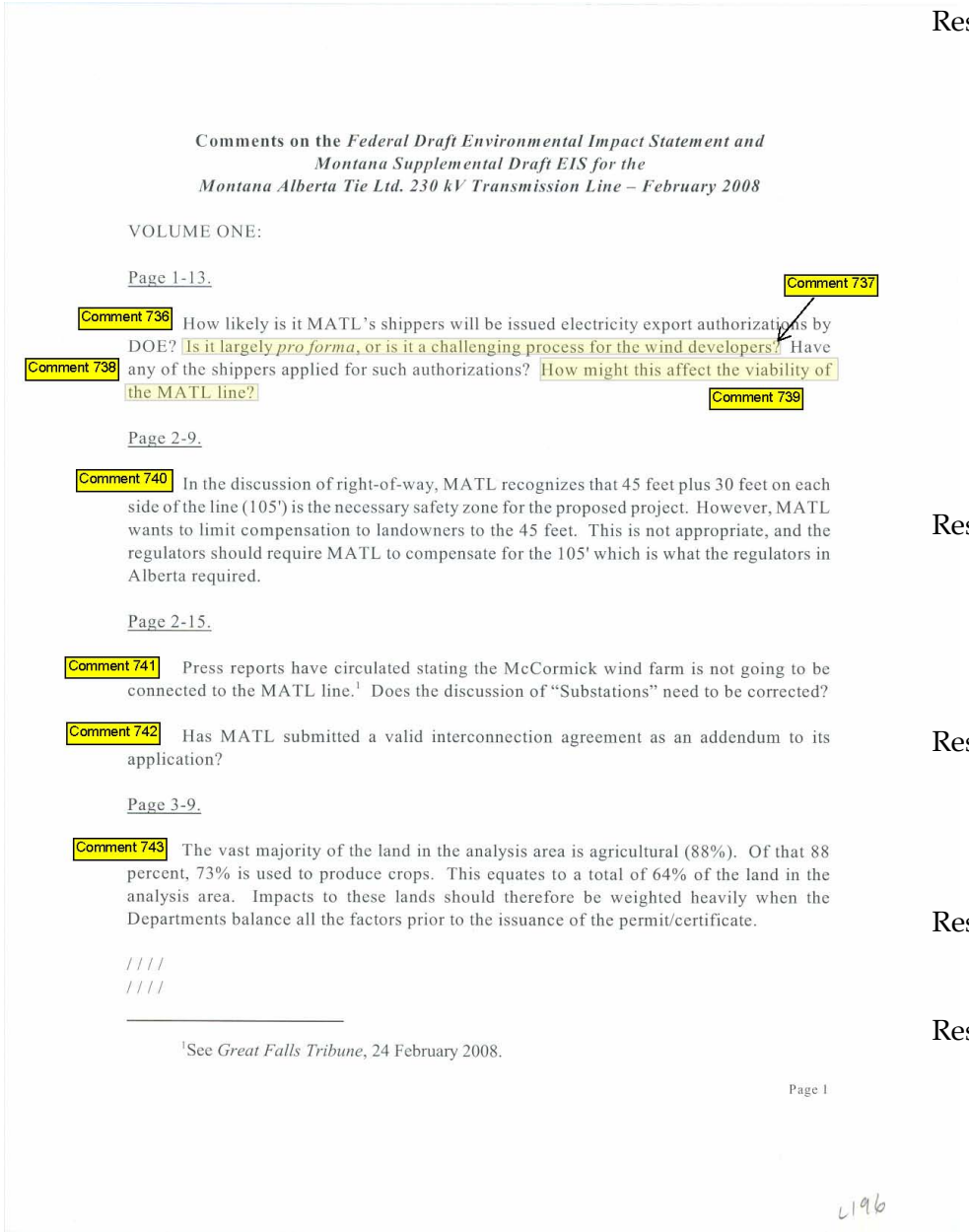
Robert L Williams

Bob Williams
VP Regulatory

3

Response 733: The proposed right-of-way is now 105 feet wide.

Response 734 and 735: Comments noted.



Comments on the *Federal Draft Environmental Impact Statement and Montana Supplemental Draft EIS for the Montana Alberta Tie Ltd. 230 kV Transmission Line – February 2008*

VOLUME ONE:

Page 1-13.

Comment 736 How likely is it MATL's shippers will be issued electricity export authorizations by DOE? Is it largely *pro forma*, or is it a challenging process for the wind developers? Comment 737 Comment 738 Have any of the shippers applied for such authorizations? How might this affect the viability of the MATL line? Comment 739

Page 2-9.

Comment 740 In the discussion of right-of-way, MATL recognizes that 45 feet plus 30 feet on each side of the line (105') is the necessary safety zone for the proposed project. However, MATL wants to limit compensation to landowners to the 45 feet. This is not appropriate, and the regulators should require MATL to compensate for the 105' which is what the regulators in Alberta required.

Page 2-15.

Comment 741 Press reports have circulated stating the McCormick wind farm is not going to be connected to the MATL line.[1] Does the discussion of "Substations" need to be corrected?

Comment 742 Has MATL submitted a valid interconnection agreement as an addendum to its application?

Page 3-9.

Comment 743 The vast majority of the land in the analysis area is agricultural (88%). Of that 88 percent, 73% is used to produce crops. This equates to a total of 64% of the land in the analysis area. Impacts to these lands should therefore be weighted heavily when the Departments balance all the factors prior to the issuance of the permit/certificate.

/ / / /
/ / / /

[1]See *Great Falls Tribune*, 24 February 2008.

Page 1

L196

Response 736: Section 202(e) of the Federal Power Act requires that no person shall transmit electric energy from the United States to a foreign country without first obtaining authority from DOE. The Act specifies that DOE shall issue an export order upon application unless, after opportunity for hearing, it finds that the proposed export would impair the sufficiency of electric supply within the United States or would impede the coordination in the public interest of facilities subject to the jurisdiction of DOE. Each export application is evaluated on its own merits and it is neither possible nor appropriate to speculate on the likelihood of issuing an export authorization to an entity that has not yet applied to DOE.

Response 737: While not challenging, an export authorization applicant must comply with the evidentiary requirements of the program regulations contained at 10 CFR 205.300 et seq. DOE has been able to respond to export requests within 60 days of receipt of an uncontested application.

Response 738: No. DOE will not accept an application to transmit electric energy to a foreign country using facilities that have not yet been authorized by issuance of a Presidential permit.

Response 739: DOE and DEQ cannot speculate on the factors which may affect the viability of the MATL line.

Response 740: MATL has indicated it would pay for a 105-foot easement. See the discussion in Section 1.6.

Response 741: Although the decision regarding interconnection of the Glacier Wind Farm (formerly the McCormick Wind Farm) changes some details presented in the EIS, it does not change the need to consider the project as part of the cumulative impact assessment in the EIS. The Marias Substation is still being proposed by MATL regardless of the Glacier Wind Farm because an intermediate substation is needed to house switching equipment and series capacitors. Since MATL does not intend to change its plans for the Marias Substation, the discussion in the EIS has not been revised.

Response 742: Yes. See Appendix M in the Final EIS.

Response 743: Comment noted. Impacts to farming land use are discussed in Section 3.1.

Page 3-17.

Comment 744 Table 3.1-3 shows there is twice as many miles of line placed on the diagonal in cropland under Alternative 2 (54.9) as there are under Alternative 4 (28). As noted later in this document, farming around structures where the line is diagonal (especially when located within a field) causes the most interference with farming operations. It seems **§3.1.3 Environmental Impacts** as to land use, should also include discussion of the increased "carbon footprint" associated with farming around poles placed within the interior of fields. Each extra movement of mechanized farm equipment around a pole spews extra carbon into the atmosphere. Over the life of this line all those additional passes around structures in the field will add to greenhouse gases. Also, the increased number of trips over the same soil leads to extra compaction of the soil which in turns reduces the amount of carbon that loose farm soil absorbs. This double negative effect on the net impact to carbon in the atmosphere should be noted as an environmental impact. It may be difficult to quantify, but that does not make it any less real. Comment 745

Page 3-88.

Comment 746 The detailed discussion regarding impacts of construction and maintenance activity relating to "vegetation" (§3.7.3.2) is equally applicable to "land use." Disturbance due to construction and maintenance will be greater on Alternative 2 than Alternative 4 because the additional miles of line placed diagonally in cropland will greatly increase the need for off right-of-way access. To get to the interior of so many more fields will mean many additional trips across land which is outside of the 45' or 105' right of way. The additional interference with farming operations and increase in disturbance to cropland should be included in the discussion of environmental impacts under land use in §3.1.3.2.

Page 3-109.

Comment 747 This discussion regarding impact on big game animals includes the statement that the construction would occur in the spring and summer. If in fact construction would take place in the spring and summer, disruption to farm activities would increase and disturbance of roadways, cropland, and rangeland would be much greater. Can the Departments require that construction not occur at such times?

Page 3-126.

Comment 748 Does Alternative 2 cross cottonwood stands on either the Marias and Teton rivers?

/ / / /

Page 2

Response 744: There would be a slight increase in carbon dioxide emissions resulting from additional equipment usage in order to farm around structures. Activities and variable factors involved in farming around are discussed in Section 3.1. The increase would be very small relative to total emissions of greenhouse gases in the region, which are discussed in Section 4.12.

Response 745: Any driving over fields with equipment will cause compaction. This includes concrete trucks and cranes. It would be worse when the soil is wet. Trucks and equipment should be kept in one track to minimize impacts. Additional compaction would be expected with more trips across an area such as when farming around poles. However, the 20% yield reduction listed on the farming costs in Section 3.13 takes this into account. Although soil compaction from agricultural equipment may have detrimental effects on crop yields, soil bulk density, and soil water processes, any effect on carbon storage in soil would be inconsequential. Carbon in the plow layer actively cycles between soil, plants, and atmosphere. Carbon sequestration is accomplished by farming practices that add large amounts of crop residues and other stable biomass to the soil and increase the soil's organic content. Continuous no-till crop production is one of the best examples of a farming practice that can increase soil organic matter and thus help sequester carbon from the atmosphere into soil (Bofto 2008). In response to this comment, information about compaction has been added to Section 3.2.3.2.

Response 746: Alternative 4 would result in the shortest distance of transmission line crossing cropland at a diagonal (See Table 3.1-3). Section 3.1.3 discusses the additional impact from diagonal crossings. Routine maintenance can often be scheduled to occur following the completion of harvest thereby reducing crop damages.

Diamond Valley South would be adjacent to about 1 mile of field road in T24N R1E between sections 3 and 10. Diamond Valley Middle would be adjacent to about 2.5 miles of field road in between T25N, R1E and T25N, R2E, and T25N R2E and T24N R2E. Diamond Valley North would be adjacent to field roads in T25N R2E between sections 31 and 32, 30 and 29, and 19 and 20. The estimated maximum number of miles of trails needed by alternative is: Alternative 2 – Dryland = 81.71 miles, Irrigated = 0.3 mile, Range = 27.55 miles; Alternative 3 – Dryland = 87.84 miles, Irrigated = 3.31 miles, Range = 17.91 miles: Alternative 4 – Dryland = 72.45 miles, Irrigated = 0 mile, Range = 40.96 miles.

Response 747: DEQ could require that construction not take place in cultivated areas during spring and summer. DEQ could also require that farmers receive compensation for damages caused by transmission line construction, such as crop losses caused by construction during the growing season.

Response 748: Alternative 2 would not cross cottonwood stands on the Marias or Teton River. See the discussion of Vegetation, Wetland and Weed Issues in the Consolidated Responses section.

Pages 3-172–175.

Comment 749 The projected tax revenues are incorrect in that they do not include a 1.5% 15-19 year tax abatement granted to MATL by the 2007 Legislature. These need to be recalculated based upon the additional tax break. MATL's corporate website includes a statement that its calculations indicate the company will pay about $600,000 per year to local governments in Montana.[2]

Page 3-234.

Comment 750 In Table 3.18-1 under "Economics - Counties" the Summary of Impacts states: All alternatives have similar impact. This is an inaccurate characterization in relation to the second column which states: "Farmers would bear additional costs from having to farm around transmission structures." The earlier discussion as to interference with farming clearly shows interior diagonal structures increase the interference and cost. Alternative 2 has twice as many miles of such line in comparison to Alternative 4. The Summary should acknowledge this difference.

Page 4-44.

Comment 751 I still question the inclusion of the last paragraph on this page. A business decision by MATL to pay for easements along one route of its choosing seems irrelevant to this discussion of regulatory restriction. How do DOE and DEQ regulate the choice of an applicant to make any particular set of easement payments?

Page 5-2.

Comment 752 In the future the Departments might analyze more carefully where they advertise public meetings. The newspapers mentioned in relation to public scoping do not cover more than the northern half of this particular project. For example, the notices should have appeared in the newspapers in Conrad, Choteau, and Great Falls.

Page 5-4.

Comment 753 Future projects that have so much impact on farmers should generate contact with NGOs such as the Montana Grain Growers Association and the Montana Farmers' Union.

/ / / /

[2]http://www.matl.ca/project/faq.php

Page 3

Response 749: See the discussion of Tax Issues in the Consolidated Responses section. The assessment assumed that MATL would be taxed at 3 percent because the agencies did not know whether the additional 50 percent tax abatement would be issued by local governments.

Response 750: The correction you stated for Table 3.18-1 has been made. The analysis presented in Section 3.13 indicates that Alternative 2 would cost more to farmers than Alternative 4.

Response 751: The agencies do not regulate MATL's choice to make particular easement payments. MATL is not prohibited from seeking easements in advance of obtaining approval from DEQ. The regulatory restrictions analysis is required by the Montana Environmental Policy Act. Also see the discussion of Legal and Regulatory Issues in the Consolidated Responses section.

Response 752: Legal notices of the meeting dates and locations were printed in the following newspapers:

Newspaper	Location	Publication Dates
Independent Observer	Conrad	Feb. 21 & Feb 28, 2008
The Valierian	Valier	Feb. 21 & Feb 28, 2008
The Shelby Promoter	Shelby	Feb. 21 & Feb 28, 2008
Choteau Acantha	Choteau	Feb. 20 & Feb 27, 2008
Cut Bank Pioneer Press	Cut Bank	Feb. 20 & Feb 27, 2008
Great Falls Tribune	Great Falls	Feb. 17 & Feb. 24, 2008

A press release was issued, but not all the news papers picked up the story. DEQ is aware that the following newspapers ran articles about the meetings – Acantha, Promoter, Pioneer Press, and Valierian.

Response 753: Comment noted.

VOLUME TWO:

Pages 35-37.

Comment 754 The property tax revenue information in these comments may no longer be valid in light of changes made by the 2007 Legislature.

Page 134.

Comment 755 Response 332 as to placing the line along a highway corridor includes a statement which recognizes "[S]uch a line location may also result in greater public exposure to EMF." Perhaps then there should be discussion elsewhere as to the possible greater effects of EMF on those who have to farm throughout each growing season in and under the proposed line.

CORRECTION TO MY EARLIER COMMENT SUBMITTED AT GREAT FALLS

Comment 756 In my comments submitted at the March 11th hearing in Great Falls, I made inaccurate statements regarding the amount of property tax relief granted to MATL by the 2007 Legislature. In paragraph 2 on page 2, I stated: "The Legislature also enacted a 75% property tax cut for the company from which it will reap nearly $800,000 each year." In fact the amount of tax relief the company received is far, far greater. The permanent property tax rate did go from 12% to 3%. However, the dollar amount of that change equals a tax reduction of **$2.2 million per year** for Alternative 2 or **$2.4 million per year** for Alternative 4. I also did not include the additional tax abatement which amounts to 1.5% for a period of 15-19 years. Since I was not completely sure as to the dollar amount generated by this abatement, I did not include it.

Comment 757 The property tax break received by affected landowners (**$40,000 per year** total for the entire 130+ miles of the line) was included as revenue to farmers in calculating compensation for interference with farming. Surely the same logic should apply when costs to MATL are discussed or considered. Any calculation of MATL's costs should include the more than $2 million per year the taxpayers of Montana are giving up to benefit MATL.

Katrina Wilson Martin
1720 24th Ln NE
Dutton, MT 59433
406-463-2337

Response 754: The property tax changes made in 2007, including those made in HB 3 of the 2007 Special Legislative Session, did not change the tax rate on wind farms. In other words, wind farms did not get an additional incentive under HB 3. The tax rate on wind farms was dropped to 3% in the 2005 Legislative Session. The tax information presented in the EIS is correct for wind farms. Also see the discussion of Tax Issues in the Consolidated Responses section.

Response 755: Section 3.4 contains the discussion of the potential impacts associated with electric and magnetic fields that would be produced by the MATL line. Also see the response to comment 596.

Response 756: Your corrections are noted. Also see the discussion of Tax Issues in the Consolidated Responses section.

Response 757: See the discussion of Farming Issues in the Consolidated Responses section. The tax advantage information has been changed accordingly to address your comment. The property tax relief to farmers is no longer included in the numerical comparison between costs and benefits, although it is mentioned separately.



Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901
MATL@mt.gov

Dear Mr. Ring,

Comment 758

I would like to share my opinions about the proposed MATL transmission line. I agree in principle with the concept of a transmission line that will allow the growth of wind generation projects in Montana and Alberta. I totally disagree with the method in which a private, for-profit, foreign company can expect to build this line as cheaply as possible with no regard to the problems it will cause farmers for generations to come. I am a third generation farmer who has had to deal with power lines my entire farming career. During the 1950s, when the Air Force missile silos were proposed, my family was promised that all power lines would be buried. When the final construction was finished, the result was 27 poles placed thirty feet from the center of the access roads and on our land. My family was paid $10 per pole for the inconvenience of farming around them. This totals $270 of compensation for fifty years of weed problems, seed, chemical and fertilizer waste, implement damage, and general hassle. Presently, my smallest farm implement is 45 feet wide and the placement of these poles creates a significant amount of "waste land". I've presented this background information to help explain my feelings on how Tonbridge, Ltd. proposes to build the MATL line. I have read the draft EIS in full and know that I am reiterating some other comments, but I feel they are important. It is a shame that a private, for-profit, foreign company has the power to exercise the law of eminent domain. I realize this must be addressed through the legislature, but that makes it no less shameful. When Tonbridge was asked why they can't build a line like the WAPA line that currently passes through our area, they replied that it was too costly to build in that manner and it was government money that built the WAPA line. I have a problem with that answer, as it seems that if Tonbridge can't build a proper line, and still be able to make a profit, then they should drop the project.

Comment 759

Comment 760

Comment 761

Comment 762

My main concern is with the "Southern Diamond Valley Optional Route". I was led to understand that the proposed route of the MATL line would parallel the existing NWE transmission line, which is miles east of my farmland, both owned and leased. Because of this I was not involved in the planning and negotiations of proposed routes. In August 2006, a MATL agent left me a message to inform me that a new proposed route included some of my land. I returned her call, but she wasn't available. Even though I left my number I was never contacted again. Because of this I assumed the said route had been abandoned. When I received the draft EIS eighteen months later and learned that one of the proposed routes would border 2 1/2 miles of land I farmed, I was stunned to say the least. I feel that I should have at least been granted the courtesy of being involved in the planning process and at the very least notified of the details of this route.

Comment 763

According to the draft EIS, this option was chosen by the local farmers. I was **not** one of the farmers invited to help choose this route. It not only unfairly impacts me, compared to my neighbors; it will displace miles of necessary farm roads that will widen the power line's impact. Who will choose where the roads will go and will the affected landowners be compensated for the extra loss of farmland? To place the power line on this route just because my neighbors don't want it on their land is totally unacceptable. My landlords and I are committed to opposing this route option to the full legal extent available to us.

Comment 764

Comment 765

Thank you for your attention to this matter,

John Goodmundson
100 1st ST SE
Dutton, MT 59433

Sent via email with hard copy backup

L197

Response 758: Comment noted.

Response 759 and 760: Comments noted. See the discussion of Farming Issues in the Consolidated Responses section.

Response 761: See the discussion of Eminent Domain in the Legal and Regulatory Issues of the Consolidated Responses section.

Response 762: Comment noted. Also see the revised discussion in Section 3.13.

Response 763 to 765: Invitations were mailed to the owners of property in the Diamond Valley area. Mr. Goodmundson's address was obtained from the database of property owners used in assessing state property taxes. DEQ has no record of the letter sent to that address being returned with an incorrect address. See the discussion in response to comment 746 for miles of field roads affected.

Mr. Goodmundson's concern about interference with use of a field road is noted and will be taken into consideration when making a decision.

DEQ must make the findings required by the Major Facility Siting Act and associated administrative rules before approving the project. Your comments will be taken into consideration when making a decision. Also see the discussion in the responses to comments 708 and 709.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
Post Office Box 25007 (D-108)
Denver, Colorado 80225-0007

March 31, 2008

9043.1
ER 08/161

Ms. Ellen Russell, Project Manager
Office of Electric Delivery and Energy Reliability
U.S. Department of Energy
Washington, D.C.

Dear Ms. Russell:

The Department of the Interior submitted comments on the Draft Environmental Impact Statement (EIS) for the Montana Alberta Tie Ltd. 230-kV Transmission Line, Montana, on March 21, 2008. The following additional comments were received from the National Park Service too late for inclusion in that letter. Please accept our apologies for any inconvenience this may cause.

Comment 766 The National Park Service understands that one of the benefits of the MATL could be alternative energy production by developed wind farms on lands east of Glacier National Park's boundary. They are supportive of alternative energy development, including wind energy, as a national goal, but are concerned that this type of development *could adversely affect the park's viewshed, night skies, and raptor populations during migration.*

Comment 767 Glacier, along with Waterton Lakes National Park in Canada, is the world's first International Peace Park and also a World Heritage Site and a Biosphere Reserve. Glacier National Park has raised concerns about impacts to the viewshed from development on the east side in the 1999 General Management Plan, in 2001 when the Park submitted comments to Bonneville Power Administration for the proposed Blackfeet Wind Project near Browning, and during scoping for this project in 2007.

Comment 768 In its scoping comments to US DOE, Glacier National Park asked that potential impacts to the Park be analyzed under cumulative impacts, but upon review of the DEIS, they did not find potential impacts to the Park acknowledged, disclosed or analyzed in the Cumulative Impact Section. Impacts to views were discussed only in a general sense.

L198

Response 766 to 768: See the discussions of Visual Issues and Wind Farm Issues in the Consolidated Responses section.

Ms. Ellen Russell 2

Comment 769 Cumulative impacts to bird species that frequent Glacier National Park were also not analyzed, although the document did analyze impacts to birds and raptors from these kinds of facilities. Impacts to night skies in Glacier National Park from future wind farm development were also not analyzed. While we understand and acknowledge safety concerns, lights on the wind turbines and associated development could have significant impacts on Glacier's night skies that are valued by park visitors and necessary for the health and survival of some wildlife species.

Comment 770 The mitigation measures described in Appendix O to reduce impacts to visual resources, raptors and night skies were well developed and appear to be complete given available technology and knowledge. However, we urge you to address ways to **require** implementation of these measures for any subsequent wind farm development, particularly farms that are adjacent to the park boundary or within view of Glacier National Park.

Comment 771 Wind farm development on public lands would be subject to further analysis and public involvement; however wind farm development on private lands would not be, unless state or local permits are required. All of the land adjacent to Glacier National Park on the east side is within the Blackfeet Indian Reservation. We anticipate working with the tribe to mitigate impacts from future wind farms, but in the event that DOE or the State are involved, Glacier National Park would like to be notified of **any** future wind farm proposals within 15 miles of the park boundary.

If you have any questions regarding these comments, please contact Mary Riddle, Environmental Protection Specialist, Planning and Compliance Coordinator Glacier National Park at (406) 888-7898.

Sincerely,



Robert F. Stewart
Regional Environmental Officer

cc: Tom Ring, Montana DEQ

Response 769: See the discussion of Avian and Wildlife Issues in the Consolidated Responses section. Note that the cumulative effects analysis analyzed impacts on all potentially impacted migratory birds. Birds were not grouped based on their destination as there is no advantage to this approach.

Response 770: See the discussion of Visual Issues and Wind Farm Issues in the Consolidated Responses section.

Response 771: DOE and the state will attempt to honor the National Park Service request for information when the agencies are involved with proposals for wind farms within 15 miles of the park boundary. However, the agencies are not likely to have any role in future wind farm projects in that area.

March 31, 2008

Montana Department of Environmental Quality

Environmental Management Bureau

ATTN: Tom Ring

PO Box 200901

Helena, MT 59620-0901

Re: the Montana Alberta Tie Line (MATL)

Comment 772

The Montana Farmers Union (MFU) would like to comment about potential benefits and/or impacts the Montana Alberta Tie Line (MATL) design may have on local area landowners and agriculture producers.

Montana Farmers Union policy has strongly supported development of alternative energy options within our state. We recognize the benefits that can be gleaned from wind energy development projects as well as other alternatives such as the planting, crushing and production of fuel from oil seed crops. As always, Montana farmers stand ready to help our state and our country move toward energy independence.

Comment 773

We do not support renewable energy developments at all costs however. We believe that development should be done smartly and with a critical eye toward the impacts or benefits to rural landowners. We think that it is in our state's economic development interests that such developments be locally owned and operated whenever possible – thus keeping revenues working in the state and in the supporting communities.

9

L199

Response 772 and 773: Comments noted.

Comment 774

In the case of the Montana Alberta Tie Line, where local impact – not ownership – is the central issue of our concern, we support development if it can be accomplished with as little impact to the affected landowners as possible. The negative impact of the diagonal lines being proposed from approximately Conrad south is significant. They pose unnecessary burdens on the farmers whose property the lines cross.

Comment 775

MFU believes that the best way to minimize impact while still ensuring that the development moves forward is by building power lines along field lines, section lines and with the use of monopoles in CRP and cropland.


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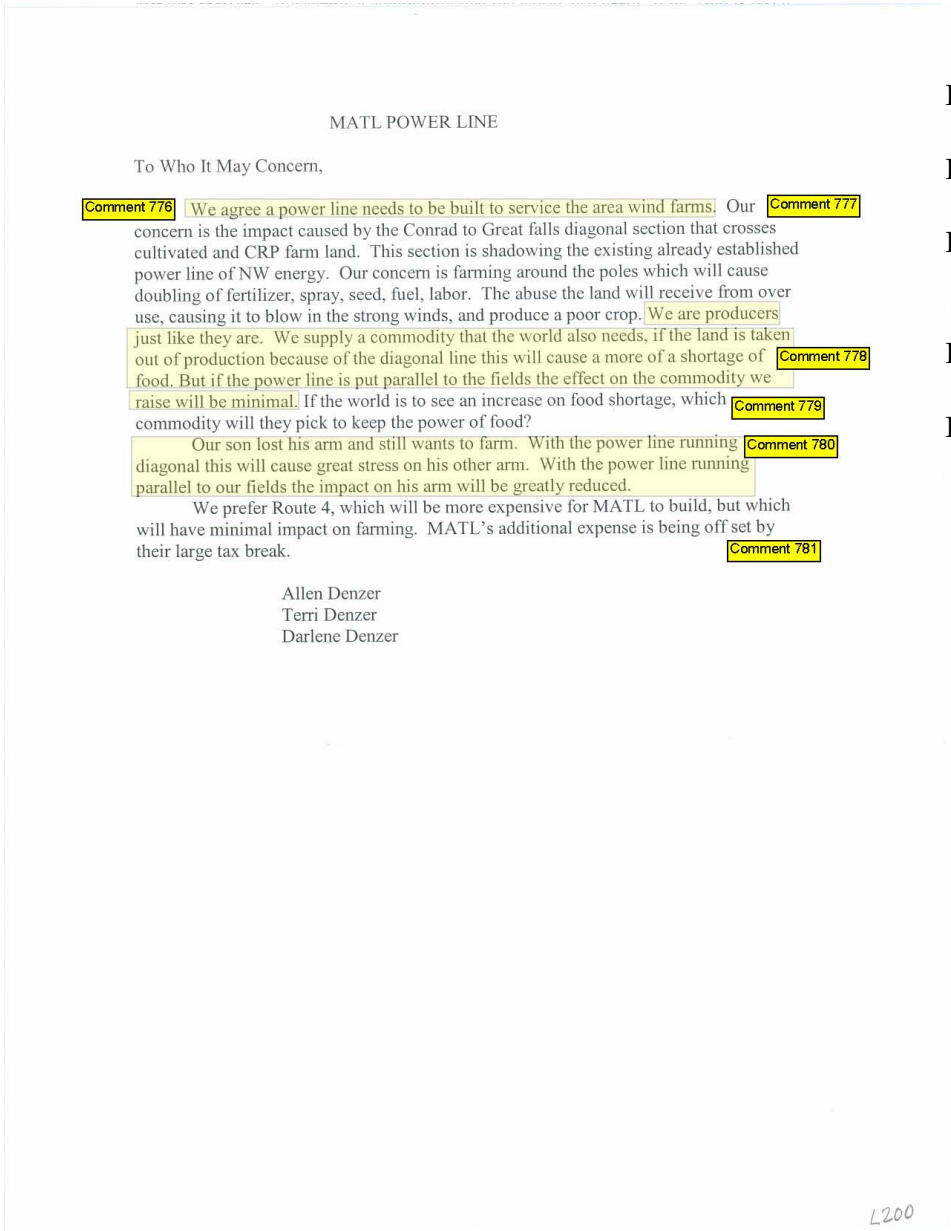
Thank you for th opportunity to submit comments.

Sincerely,

Alan Merrill, President

10

Response 774 and 775: Comments noted.



MATL POWER LINE

To Who It May Concern,

Comment 776 We agree a power line needs to be built to service the area wind farms. Our Comment 777 concern is the impact caused by the Conrad to Great falls diagonal section that crosses cultivated and CRP farm land. This section is shadowing the existing already established power line of NW energy. Our concern is farming around the poles which will cause doubling of fertilizer, spray, seed, fuel, labor. The abuse the land will receive from over use, causing it to blow in the strong winds, and produce a poor crop. We are producers just like they are. We supply a commodity that the world also needs, if the land is taken out of production because of the diagonal line this will cause a more of a shortage of Comment 778 food. But if the power line is put parallel to the fields the effect on the commodity we raise will be minimal. If the world is to see an increase on food shortage, which Comment 779 commodity will they pick to keep the power of food?

Our son lost his arm and still wants to farm. With the power line running Comment 780 diagonal this will cause great stress on his other arm. With the power line running parallel to our fields the impact on his arm will be greatly reduced.

We prefer Route 4, which will be more expensive for MATL to build, but which will have minimal impact on farming. MATL's additional expense is being off set by their large tax break. Comment 781

Allen Denzer
Terri Denzer
Darlene Denzer

L200

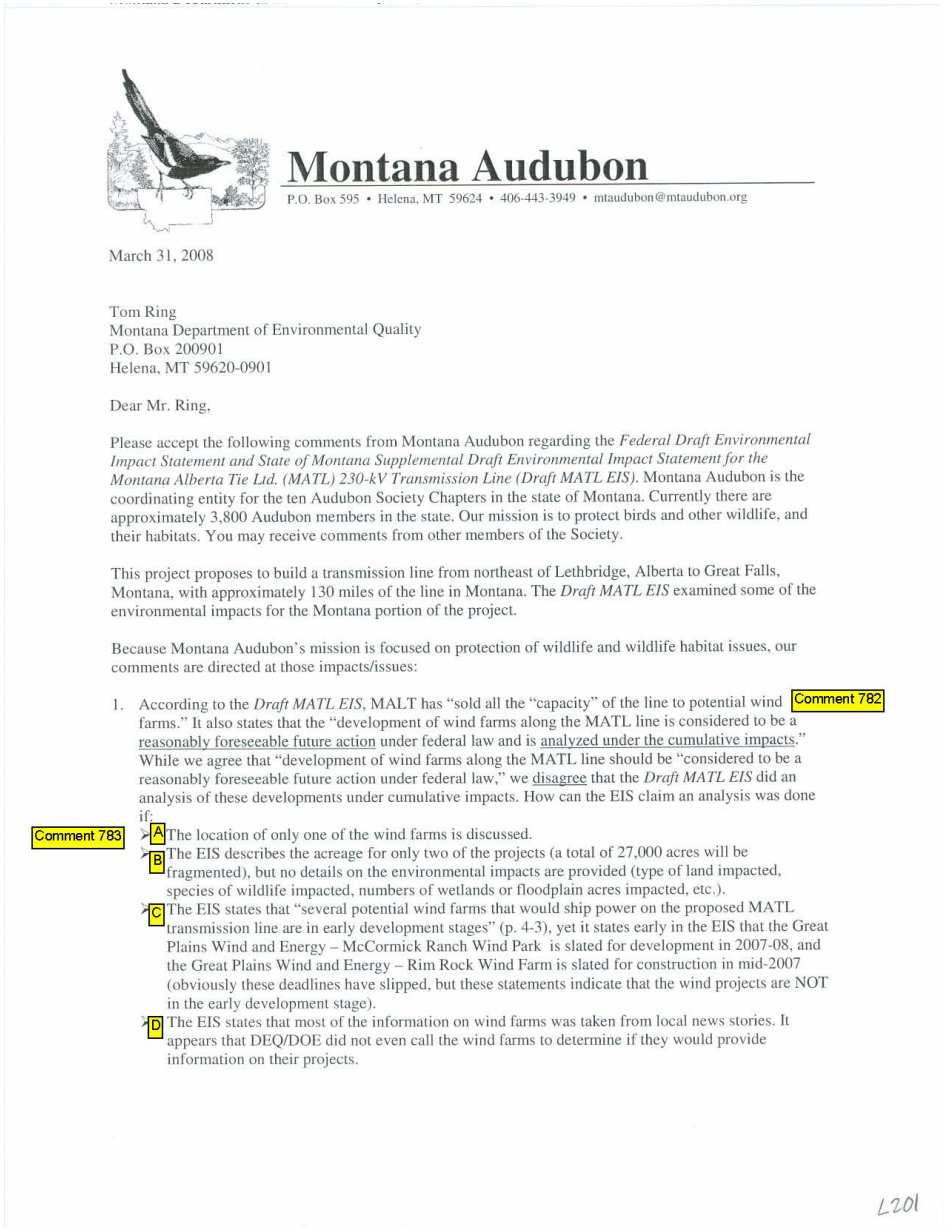
Response 776: Comment noted.

Response 777: Comments noted.

Response 778 to 779: Comments noted. See the discussion of Farming Issues in the Consolidated Responses section.

Response 780: Comment noted.

Response 781: Comment noted.



Montana Audubon

P.O. Box 595 • Helena, MT 59624 • 406-443-3949 • mtaudubon@mtaudubon.org

March 31, 2008

Tom Ring
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring,

Please accept the following comments from Montana Audubon regarding the *Federal Draft Environmental Impact Statement and State of Montana Supplemental Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (Draft MATL EIS)*. Montana Audubon is the coordinating entity for the ten Audubon Society Chapters in the state of Montana. Currently there are approximately 3,800 Audubon members in the state. Our mission is to protect birds and other wildlife, and their habitats. You may receive comments from other members of the Society.

This project proposes to build a transmission line from northeast of Lethbridge, Alberta to Great Falls, Montana, with approximately 130 miles of the line in Montana. The *Draft MATL EIS* examined some of the environmental impacts for the Montana portion of the project.

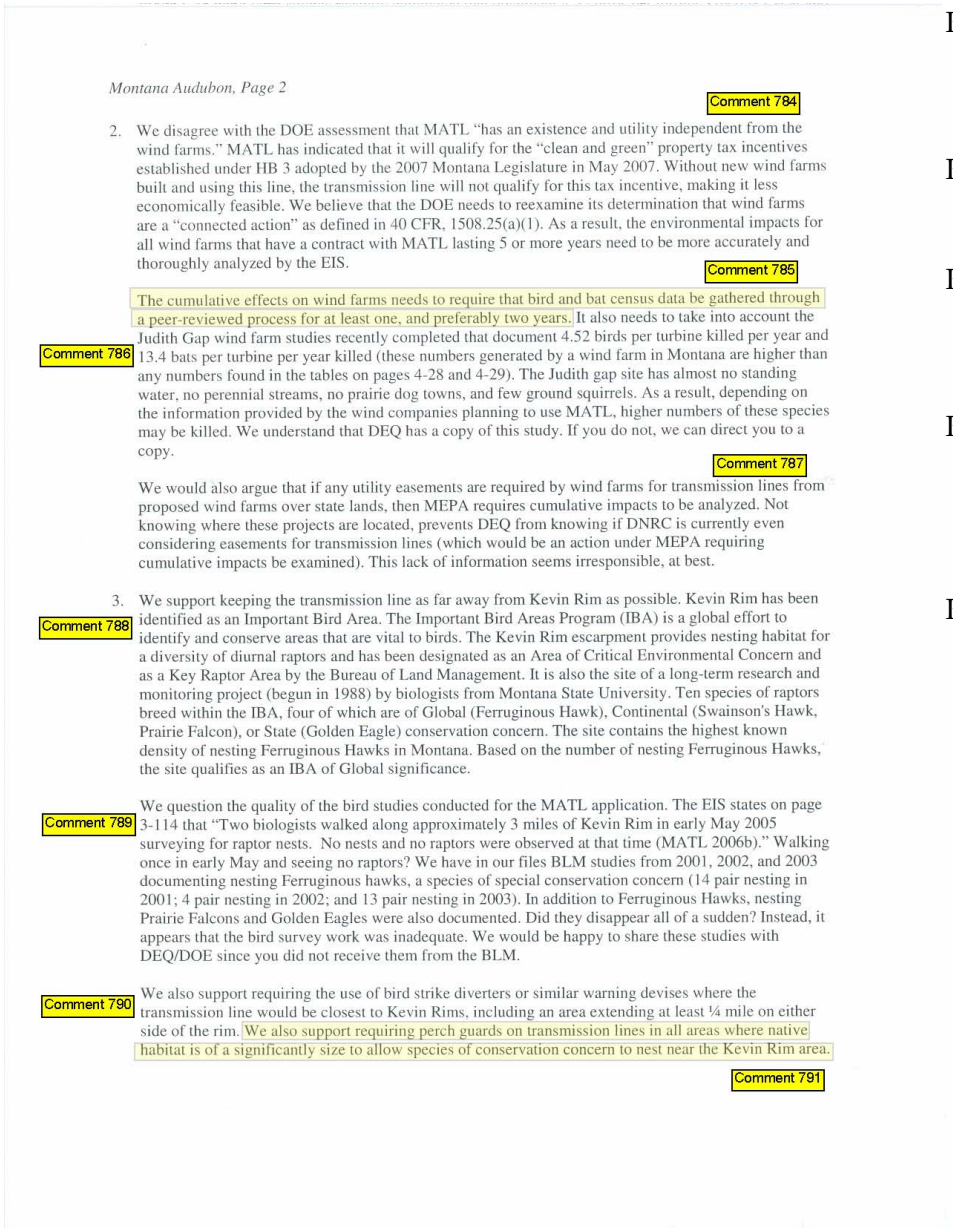
Because Montana Audubon's mission is focused on protection of wildlife and wildlife habitat issues, our comments are directed at those impacts/issues:

1. According to the *Draft MATL EIS*, MALT has "sold all the "capacity" of the line to potential wind farms." It also states that the "development of wind farms along the MATL line is considered to be a reasonably foreseeable future action under federal law and is analyzed under the cumulative impacts." While we agree that "development of wind farms along the MATL line should be "considered to be a reasonably foreseeable future action under federal law," we disagree that the *Draft MATL EIS* did an analysis of these developments under cumulative impacts. How can the EIS claim an analysis was done if:
   - A The location of only one of the wind farms is discussed.
   - B The EIS describes the acreage for only two of the projects (a total of 27,000 acres will be fragmented), but no details on the environmental impacts are provided (type of land impacted, species of wildlife impacted, numbers of wetlands or floodplain acres impacted, etc.).
   - C The EIS states that "several potential wind farms that would ship power on the proposed MATL transmission line are in early development stages" (p. 4-3), yet it states early in the EIS that the Great Plains Wind and Energy – McCormick Ranch Wind Park is slated for development in 2007-08, and the Great Plains Wind and Energy – Rim Rock Wind Farm is slated for construction in mid-2007 (obviously these deadlines have slipped, but these statements indicate that the wind projects are NOT in the early development stage).
   - D The EIS states that most of the information on wind farms was taken from local news stories. It appears that DEQ/DOE did not even call the wind farms to determine if they would provide information on their projects.

L201

Response 782: See the discussion of Wind Farm Issues and Legal and Regulatory Issues in the Consolidated Responses section.

Response 783: See the discussion of Wind Farm Issues in the Consolidated Responses section.



Montana Audubon, Page 2

Comment 784

2. We disagree with the DOE assessment that MATL "has an existence and utility independent from the wind farms." MATL has indicated that it will qualify for the "clean and green" property tax incentives established under HB 3 adopted by the 2007 Montana Legislature in May 2007. Without new wind farms built and using this line, the transmission line will not qualify for this tax incentive, making it less economically feasible. We believe that the DOE needs to reexamine its determination that wind farms are a "connected action" as defined in 40 CFR, 1508.25(a)(1). As a result, the environmental impacts for all wind farms that have a contract with MATL lasting 5 or more years need to be more accurately and thoroughly analyzed by the EIS.

Comment 785

The cumulative effects on wind farms needs to require that bird and bat census data be gathered through a peer-reviewed process for at least one, and preferably two years. It also needs to take into account the Judith Gap wind farm studies recently completed that document 4.52 birds per turbine killed per year and

Comment 786

13.4 bats per turbine per year killed (these numbers generated by a wind farm in Montana are higher than any numbers found in the tables on pages 4-28 and 4-29). The Judith gap site has almost no standing water, no perennial streams, no prairie dog towns, and few ground squirrels. As a result, depending on the information provided by the wind companies planning to use MATL, higher numbers of these species may be killed. We understand that DEQ has a copy of this study. If you do not, we can direct you to a copy.

Comment 787

We would also argue that if any utility easements are required by wind farms for transmission lines from proposed wind farms over state lands, then MEPA requires cumulative impacts to be analyzed. Not knowing where these projects are located, prevents DEQ from knowing if DNRC is currently even considering easements for transmission lines (which would be an action under MEPA requiring cumulative impacts be examined). This lack of information seems irresponsible, at best.

3. We support keeping the transmission line as far away from Kevin Rim as possible. Kevin Rim has been

Comment 788

identified as an Important Bird Area. The Important Bird Areas Program (IBA) is a global effort to identify and conserve areas that are vital to birds. The Kevin Rim escarpment provides nesting habitat for a diversity of diurnal raptors and has been designated as an Area of Critical Environmental Concern and as a Key Raptor Area by the Bureau of Land Management. It is also the site of a long-term research and monitoring project (begun in 1988) by biologists from Montana State University. Ten species of raptors breed within the IBA, four of which are of Global (Ferruginous Hawk), Continental (Swainson's Hawk, Prairie Falcon), or State (Golden Eagle) conservation concern. The site contains the highest known density of nesting Ferruginous Hawks in Montana. Based on the number of nesting Ferruginous Hawks, the site qualifies as an IBA of Global significance.

Comment 789

We question the quality of the bird studies conducted for the MATL application. The EIS states on page 3-114 that "Two biologists walked along approximately 3 miles of Kevin Rim in early May 2005 surveying for raptor nests. No nests and no raptors were observed at that time (MATL 2006b)." Walking once in early May and seeing no raptors? We have in our files BLM studies from 2001, 2002, and 2003 documenting nesting Ferruginous hawks, a species of special conservation concern (14 pair nesting in 2001; 4 pair nesting in 2002; and 13 pair nesting in 2003). In addition to Ferruginous Hawks, nesting Prairie Falcons and Golden Eagles were also documented. Did they disappear all of a sudden? Instead, it appears that the bird survey work was inadequate. We would be happy to share these studies with DEQ/DOE since you did not receive them from the BLM.

Comment 790

We also support requiring the use of bird strike diverters or similar warning devises where the transmission line would be closest to Kevin Rims, including an area extending at least ¼ mile on either side of the rim. We also support requiring perch guards on transmission lines in all areas where native habitat is of a significantly size to allow species of conservation concern to nest near the Kevin Rim area.

Comment 791

Response 784: See the discussion of Tax Issues, Legal and Regulatory Issues, and Wind Farm Issues in the Consolidated Responses section.

Response 785: See the discussion of Wind Farm Issues in the Consolidated Responses section.

Response 786: See the revisions to Section 4.9, which includes information from a recent study of bird mortality estimated at Montana's largest operating wind farm near Judith Gap.

Response 787: See the discussion of Wind Farm Issues in the Consolidated Responses section. DNRC has no power line easement applications in the area of the proposed MATL line (Sullivan 2008).

Response 788: Kevin Rim is discussed in Sections 3.7, 3.8, and 3.10. The easternmost alternative route for the transmission line (Alternatives 2 and 4) is approximately 7 miles due west of the Kevin Rim Area of Critical Environmental Concern (ACEC). The other routes are further west. Additionally, the agencies note that one anemometer is located near Kevin Rim. Although the presence of an anemometer does not equate to a wind farm, the presence of an anemometer does indicate interest in wind resources.

Response 789: Regarding wildlife surveys, see the discussion of Avian and Wildlife Issues in the Consolidated Responses section.

As stated in Table 2.3-4, "Raptor safe power line construction practices (Edison Electric Institute, Avian Power Line Interaction Committee) would be employed during transmission line construction." Additionally, in Table 2.3-4, it states "Approved line marking devices would be installed at appropriate intervals and appropriately staggered on each overhead ground wire across stream crossings and migratory bird flyways (for example wetlands) within the Right-of-Way." These areas would be finalized during design.

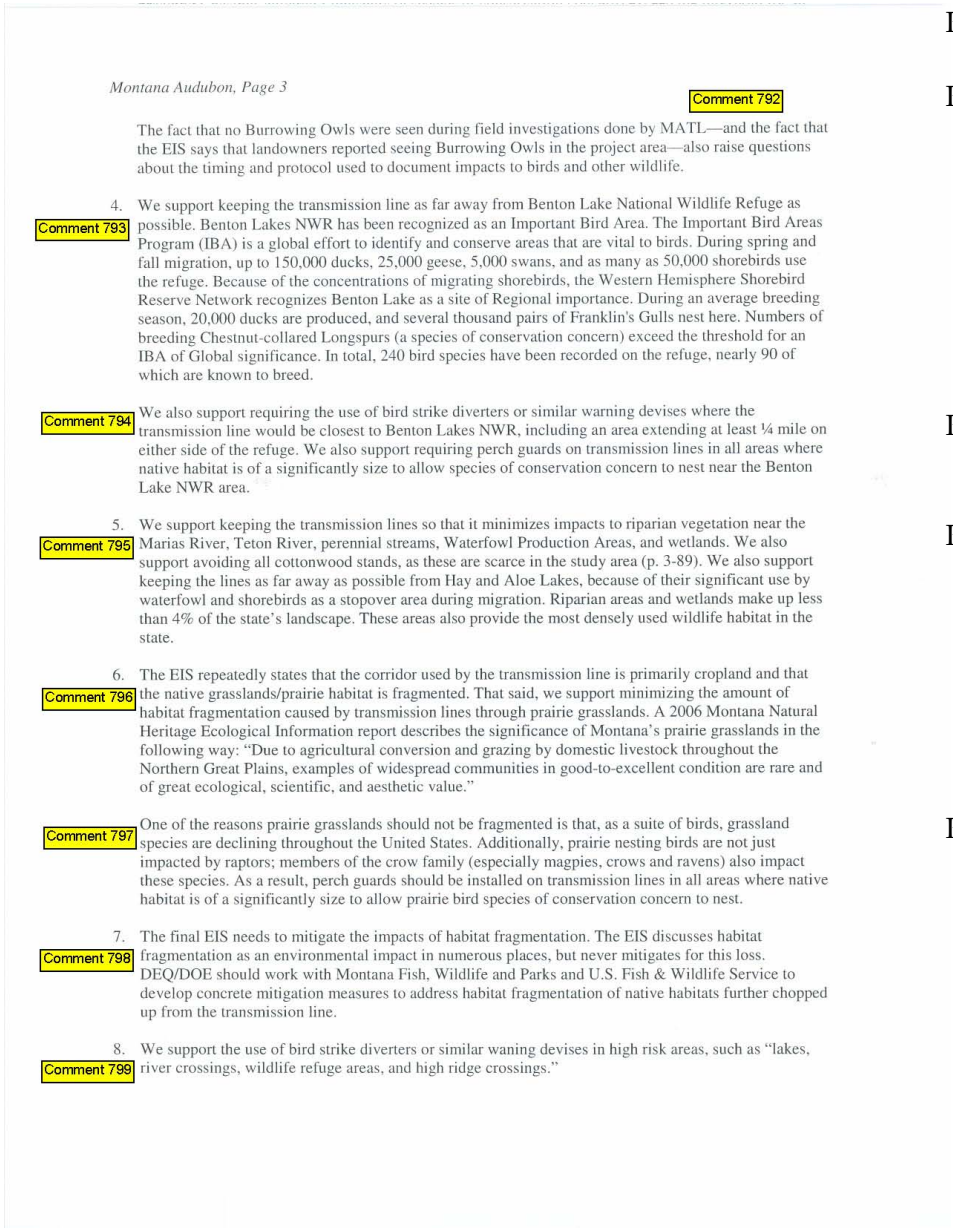
Section 3.8.3.2 contains a discussion of potential collision impacts as well as environmental protection measures that would be implemented.

As stated in Appendix F, environmental specifications under consideration by DEQ would include the requirement that "Overhead ground wires within ¼ mile of wetlands will be marked to reduce the potential for collisions after inspection and a determination of the need for marking in consultation with FWP and FWS biologists."

Response 790: The easternmost route (Alternatives 2 and 4) is approximately 7 miles due west of the Kevin Rim area ACEC and about 3 miles west of the rims northwest and southwest of Kevin. Alternative 3 is farther west.

MATL has carried out field studies using censusing protocols, including call back surveys, to determine the presence of listed species. Few areas of concern have been identified. See Section 4.9.

Response 791: MATL has agreed to use perch guards where, in collaboration with regulatory authorities, it is determined that they are required. The MATL transmission line is located about 3 miles from the rims northwest and southwest of Kevin. Regarding wildlife surveys, see the discussion of Avian and Wildlife Issues in the Consolidated Responses section.



Montana Audubon, Page 3

Comment 792

The fact that no Burrowing Owls were seen during field investigations done by MATL—and the fact that the EIS says that landowners reported seeing Burrowing Owls in the project area—also raise questions about the timing and protocol used to document impacts to birds and other wildlife.

4. We support keeping the transmission line as far away from Benton Lake National Wildlife Refuge as possible. Benton Lakes NWR has been recognized as an Important Bird Area. The Important Bird Areas Program (IBA) is a global effort to identify and conserve areas that are vital to birds. During spring and fall migration, up to 150,000 ducks, 25,000 geese, 5,000 swans, and as many as 50,000 shorebirds use the refuge. Because of the concentrations of migrating shorebirds, the Western Hemisphere Shorebird Reserve Network recognizes Benton Lake as a site of Regional importance. During an average breeding season, 20,000 ducks are produced, and several thousand pairs of Franklin's Gulls nest here. Numbers of breeding Chestnut-collared Longspurs (a species of conservation concern) exceed the threshold for an IBA of Global significance. In total, 240 bird species have been recorded on the refuge, nearly 90 of which are known to breed.

Comment 793

Comment 794

We also support requiring the use of bird strike diverters or similar warning devises where the transmission line would be closest to Benton Lakes NWR, including an area extending at least ¼ mile on either side of the refuge. We also support requiring perch guards on transmission lines in all areas where native habitat is of a significantly size to allow species of conservation concern to nest near the Benton Lake NWR area.

5. We support keeping the transmission lines so that it minimizes impacts to riparian vegetation near the Marias River, Teton River, perennial streams, Waterfowl Production Areas, and wetlands. We also support avoiding all cottonwood stands, as these are scarce in the study area (p. 3-89). We also support keeping the lines as far away as possible from Hay and Aloe Lakes, because of their significant use by waterfowl and shorebirds as a stopover area during migration. Riparian areas and wetlands make up less than 4% of the state's landscape. These areas also provide the most densely used wildlife habitat in the state.

Comment 795

6. The EIS repeatedly states that the corridor used by the transmission line is primarily cropland and that the native grasslands/prairie habitat is fragmented. That said, we support minimizing the amount of habitat fragmentation caused by transmission lines through prairie grasslands. A 2006 Montana Natural Heritage Ecological Information report describes the significance of Montana's prairie grasslands in the following way: "Due to agricultural conversion and grazing by domestic livestock throughout the Northern Great Plains, examples of widespread communities in good-to-excellent condition are rare and of great ecological, scientific, and aesthetic value."

Comment 796

Comment 797

One of the reasons prairie grasslands should not be fragmented is that, as a suite of birds, grassland species are declining throughout the United States. Additionally, prairie nesting birds are not just impacted by raptors; members of the crow family (especially magpies, crows and ravens) also impact these species. As a result, perch guards should be installed on transmission lines in all areas where native habitat is of a significantly size to allow prairie bird species of conservation concern to nest.

7. The final EIS needs to mitigate the impacts of habitat fragmentation. The EIS discusses habitat fragmentation as an environmental impact in numerous places, but never mitigates for this loss. DEQ/DOE should work with Montana Fish, Wildlife and Parks and U.S. Fish & Wildlife Service to develop concrete mitigation measures to address habitat fragmentation of native habitats further chopped up from the transmission line.

Comment 798

8. We support the use of bird strike diverters or similar waning devises in high risk areas, such as "lakes, river crossings, wildlife refuge areas, and high ridge crossings."

Comment 799

Response 792: Comment noted.

Response 793: The alignments cross land to the east (Alternatives 2 and 3) or south and west (Alternative 4) of Benton Lake NWR. Alternative 2 and 3 routes are approximately 0.8 to 0.9 mile away from Benton Lake, but much closer to the eastern boundary of the NWR, while Alternative 4 is more than 2 miles from the nearest NWR boundary. This information has been included in Section 3.8.3.2.

Response 794: See the discussion in the responses to comments 789 and 791.

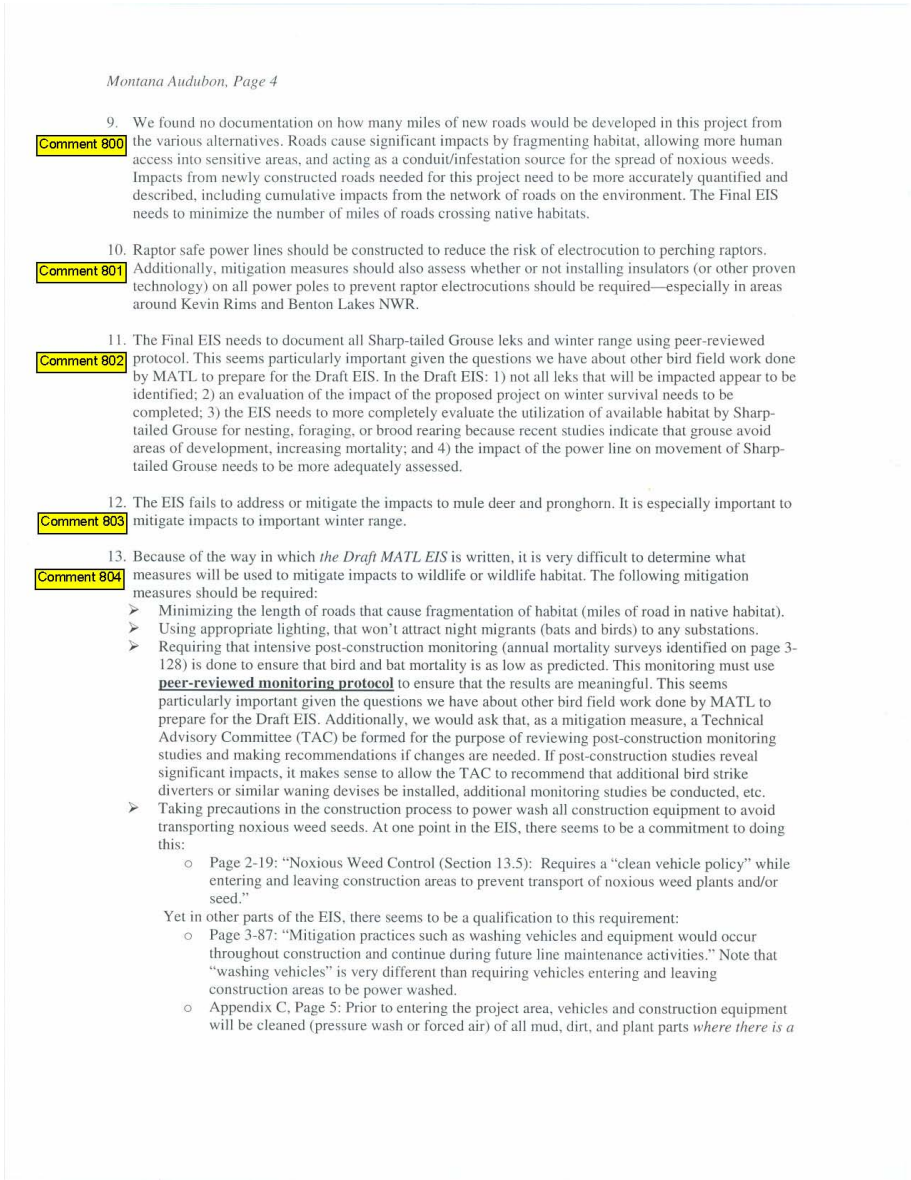
Response 795: Comments noted. See the discussion of Legal and Regulatory Issues and Vegetation, Wetlands and Weed Issues in the Consolidated Responses section. Aloe Lake is 10-12 miles from the transmission line alternatives. North of Cut Bank, Alternatives 2 and 4 pass near Hay and Grassy lakes, while Alternative 3 passes near or crosses several unnamed ponds and intermittent lakes.

Response 796: As the comment notes, little native grassland habitat remains in the area, and the habitat that remains is fragmented. Transmission line development should not contribute to substantial fragmentation of grassland habitats because any permanent disturbance of grassland vegetation would be spatially discontinuous; only the sites of transmission line support structures would be permanently disturbed for construction. Alternative 4 would cross the greatest amount of grassland but Alternative 2, which best avoids grasslands, conflicts with your preference to remain as far away from the refuge as possible.

Response 797: Comment noted.

Response 798: Farming and other development in the area has already fragmented the natural grassland habitat. Transmission line development could contribute to additional fragmentation of grassland habitats, especially along the Dry Fork Marias River on Alternative 4.

Response 799: Comment noted.



Montana Audubon, Page 4

Comment 800

9. We found no documentation on how many miles of new roads would be developed in this project from the various alternatives. Roads cause significant impacts by fragmenting habitat, allowing more human access into sensitive areas, and acting as a conduit/infestation source for the spread of noxious weeds. Impacts from newly constructed roads needed for this project need to be more accurately quantified and described, including cumulative impacts from the network of roads on the environment. The Final EIS needs to minimize the number of miles of roads crossing native habitats.

Comment 801

10. Raptor safe power lines should be constructed to reduce the risk of electrocution to perching raptors. Additionally, mitigation measures should also assess whether or not installing insulators (or other proven technology) on all power poles to prevent raptor electrocutions should be required—especially in areas around Kevin Rims and Benton Lakes NWR.

Comment 802

11. The Final EIS needs to document all Sharp-tailed Grouse leks and winter range using peer-reviewed protocol. This seems particularly important given the questions we have about other bird field work done by MATL to prepare for the Draft EIS. In the Draft EIS: 1) not all leks that will be impacted appear to be identified; 2) an evaluation of the impact of the proposed project on winter survival needs to be completed; 3) the EIS needs to more completely evaluate the utilization of available habitat by Sharp-tailed Grouse for nesting, foraging, or brood rearing because recent studies indicate that grouse avoid areas of development, increasing mortality; and 4) the impact of the power line on movement of Sharp-tailed Grouse needs to be more adequately assessed.

Comment 803

12. The EIS fails to address or mitigate the impacts to mule deer and pronghorn. It is especially important to mitigate impacts to important winter range.

Comment 804

13. Because of the way in which *the Draft MATL EIS* is written, it is very difficult to determine what measures will be used to mitigate impacts to wildlife or wildlife habitat. The following mitigation measures should be required:

- Minimizing the length of roads that cause fragmentation of habitat (miles of road in native habitat).
- Using appropriate lighting, that won't attract night migrants (bats and birds) to any substations.
- Requiring that intensive post-construction monitoring (annual mortality surveys identified on page 3-128) is done to ensure that bird and bat mortality is as low as predicted. This monitoring must use **peer-reviewed monitoring protocol** to ensure that the results are meaningful. This seems particularly important given the questions we have about other bird field work done by MATL to prepare for the Draft EIS. Additionally, we would ask that, as a mitigation measure, a Technical Advisory Committee (TAC) be formed for the purpose of reviewing post-construction monitoring studies and making recommendations if changes are needed. If post-construction studies reveal significant impacts, it makes sense to allow the TAC to recommend that additional bird strike diverters or similar waning devises be installed, additional monitoring studies be conducted, etc.
- Taking precautions in the construction process to power wash all construction equipment to avoid transporting noxious weed seeds. At one point in the EIS, there seems to be a commitment to doing this:
  - Page 2-19: "Noxious Weed Control (Section 13.5): Requires a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed."

  Yet in other parts of the EIS, there seems to be a qualification to this requirement:
  - Page 3-87: "Mitigation practices such as washing vehicles and equipment would occur throughout construction and continue during future line maintenance activities." Note that "washing vehicles" is very different than requiring vehicles entering and leaving construction areas to be power washed.
  - Appendix C, Page 5: Prior to entering the project area, vehicles and construction equipment will be cleaned (pressure wash or forced air) of all mud, dirt, and plant parts *where there is a*

Response 800: Until the project is completely planned and engineered, it is not possible to determine the location and length of access roads. The project would employ environmental protection measures to minimize the area disturbed due to access roads and the impacts from erosion, soil compaction, and noxious weeds. See Table 2.3-2 in the EIS and Section 2.7 of Appendix F.

Response 801: As discussed in Section 3.8.3.2, transmission line design standards provide adequate spacing to prevent raptor electrocution.

Response 802: Section 3.8.2.2 has been updated to reflect the latest surveys. Lek surveys were conducted on April 30 (ground) and May 2 (aerial), 2008. Although some isolated sharp-tailed grouse were seen, no leks were observed. Wind breaks and shrubby areas are generally avoided. See the discussion of Avian and Wildlife Issues in the Consolidated Responses section. It is possible that sharp-tailed grouse may collide with the line.

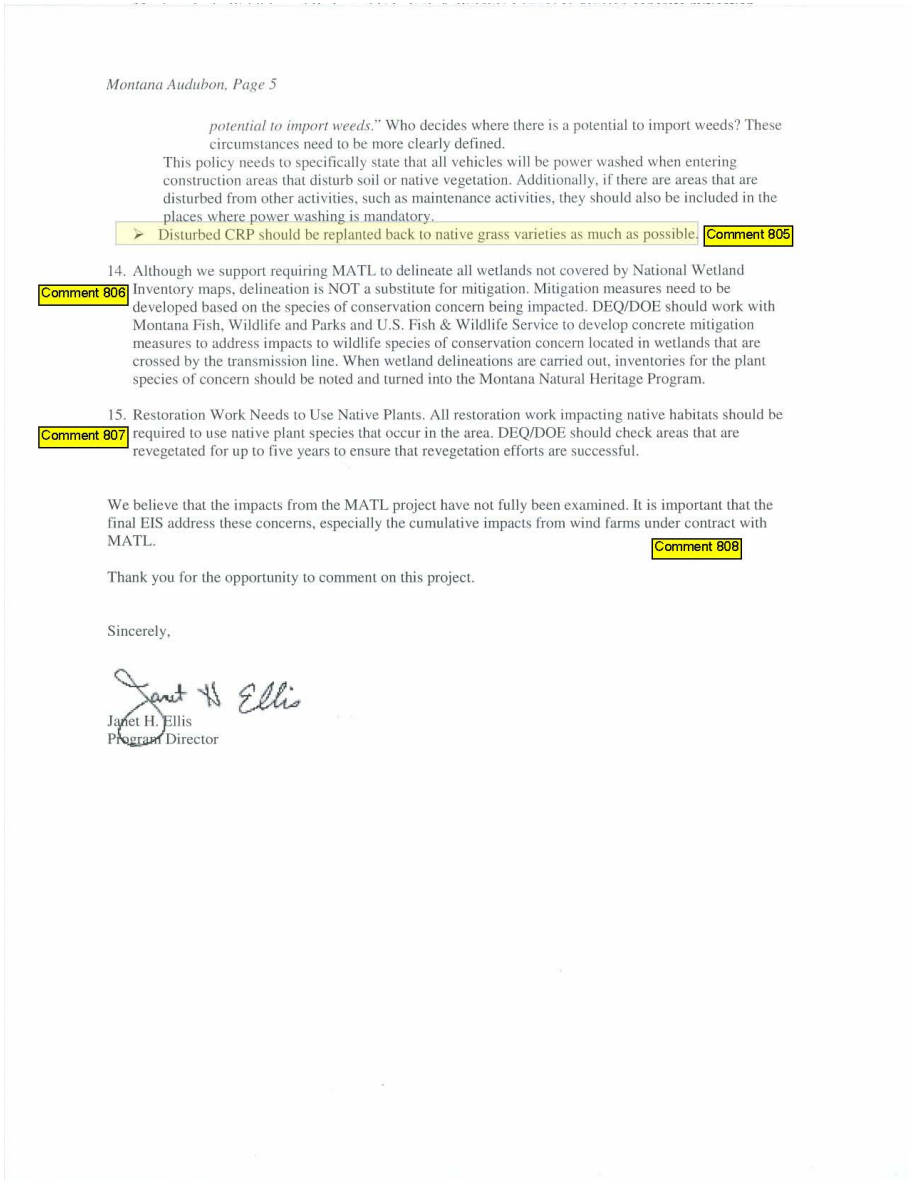
Response 803: The majority of impacts to winter range would be short term due to construction activities. The DOE and DEQ did not find the long-term impacts to be at a level to warrant mitigation as long-term impacts would consist of a minimal amount of habitat loss.

Response 804: Comments noted. Road length and impacts would be minimized as outlined in the DEIS. The contradiction between the Chapter 2 summary "requiring" a clean vehicle policy and Chapter 3 and Appendix C "recommending" clean vehicle mitigation has been corrected. The requirement is for vehicles to be thoroughly washed. See Appendix F, item 2.8.6.

During the preparation of the Major Facility Siting Act application (MFSA) and the Draft EIS, MATL communicated with Montana Fish, Wildlife & Parks relative to known locations, population status, and habitat use of sharp-tailed grouse in the project area. MATL also conducted lek surveys in areas of suitable habitat within the project area (MATL 2006b, as referenced in the EIS). Field surveys undertaken by MATL in 2005 resulted in the verification of seven sharp-tailed grouse leks, three observed and four heard.

MATL's MFSA application (MATL 2006b), page 83 provides the following discussion on grouse winter range: "Gary Olson, Region 4 biologist for Montana Fish, Wildlife, and Parks (MFWP) in Conrad identified shelterbelts and riparian areas as areas where Sharp-tailed grouse concentrate during severe winters (Olson 2006). MT Natural Heritage Program cited the MFWP Bird Coordinator, Rick Northrup, as also identifying riparian and brush-covered areas as important to sharp-tailed grouse during severe winters (Maxwell 2006). MFWP has not developed this information into a GIS layer that could be used to make a map. But, Olson reiterated that sharp-tailed grouse are widely distributed within the Project Study Area from the Canadian Border south to Great Falls. He said that field and homestead shelterbelts as well as native riparian areas, including brush coulee bottoms, are where sharp-tailed grouse concentrate during severe winters."

During a subsequent conversation with Gary Olson on May 6, 2008, he reiterated that there were no available data on sharp-tailed grouse movement patterns relative to winter habitat use for the Project Area, and that given the wide and diverse distribution of potential severe winter habitat, additional detail could not be expected or provided. He did indicate that some 2008 data recently collected for areas north of Cut Bank would provide additional information on spring distribution and habitat use (including lek attendance).



Montana Audubon, Page 5

potential to import weeds." Who decides where there is a potential to import weeds? These circumstances need to be more clearly defined.

This policy needs to specifically state that all vehicles will be power washed when entering construction areas that disturb soil or native vegetation. Additionally, if there are areas that are disturbed from other activities, such as maintenance activities, they should also be included in the places where power washing is mandatory.

- Disturbed CRP should be replanted back to native grass varieties as much as possible. Comment 805

14. Although we support requiring MATL to delineate all wetlands not covered by National Wetland Inventory maps, delineation is NOT a substitute for mitigation. Mitigation measures need to be developed based on the species of conservation concern being impacted. DEQ/DOE should work with Montana Fish, Wildlife and Parks and U.S. Fish & Wildlife Service to develop concrete mitigation measures to address impacts to wildlife species of conservation concern located in wetlands that are crossed by the transmission line. When wetland delineations are carried out, inventories for the plant species of concern should be noted and turned into the Montana Natural Heritage Program. Comment 806

15. Restoration Work Needs to Use Native Plants. All restoration work impacting native habitats should be required to use native plant species that occur in the area. DEQ/DOE should check areas that are revegetated for up to five years to ensure that revegetation efforts are successful. Comment 807

We believe that the impacts from the MATL project have not fully been examined. It is important that the final EIS address these concerns, especially the cumulative impacts from wind farms under contract with MATL. Comment 808

Thank you for the opportunity to comment on this project.

Sincerely,

Janet H. Ellis

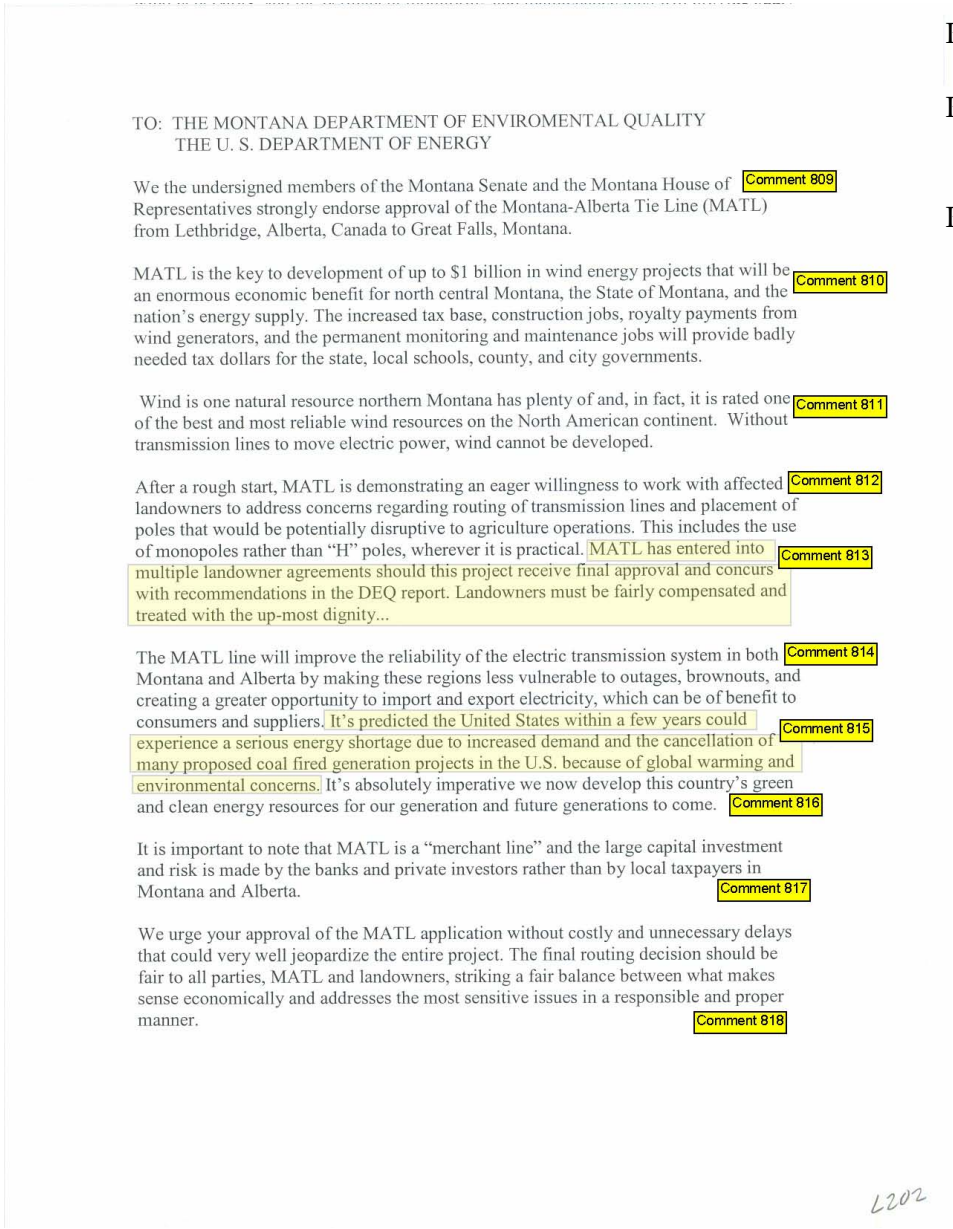
Janet H. Ellis
Program Director

Response 805: Your comment is noted. Section 3.7.3.2 discusses revegetation with the appropriate seed mixtures. For CRP land those seed mixtures would be determined by the requirements of the CRP program.

Response 806: Your comment is noted. Additional information pertaining to wetlands in Teton County is presented in Section 3.6. The delineation of all wetlands along the selected alignment where it traverses Teton County is primarily to assist with the engineering design and pole placement, so that all wetlands can be spanned. DEQ has draft Environmental Specifications (Appendix F, revised in the Final EIS) that are essentially mitigation measures that apply to many environmental aspects of the project to ensure that the disturbed areas are returned to conditions as good as or better than before construction. Additional mitigation measures specific to wetlands and Waters of the United States may be required by the U.S. Army Corps of Engineers under a Nationwide #12 Permit (Utilities Line Activities), if any construction, maintenance, or repair of utility lines and associated facilities is required within a jurisdictional wetland and Waters of the U.S. DOE has completed consultation with the U.S. Fish and Wildlife Service for this project. The inventorying of wetland plant species of concern could be included as an ecological component of the delineation of wetlands along the selected alignment.

Response 807: DEQ's administrative rules allow the department to hold a bond and monitor reclamation.

Response 808: Comment noted.



TO: THE MONTANA DEPARTMENT OF ENVIROMENTAL QUALITY
THE U. S. DEPARTMENT OF ENERGY

We the undersigned members of the Montana Senate and the Montana House of Representatives strongly endorse approval of the Montana-Alberta Tie Line (MATL) from Lethbridge, Alberta, Canada to Great Falls, Montana. Comment 809

MATL is the key to development of up to $1 billion in wind energy projects that will be an enormous economic benefit for north central Montana, the State of Montana, and the nation's energy supply. The increased tax base, construction jobs, royalty payments from wind generators, and the permanent monitoring and maintenance jobs will provide badly needed tax dollars for the state, local schools, county, and city governments. Comment 810

Wind is one natural resource northern Montana has plenty of and, in fact, it is rated one of the best and most reliable wind resources on the North American continent. Without transmission lines to move electric power, wind cannot be developed. Comment 811

After a rough start, MATL is demonstrating an eager willingness to work with affected landowners to address concerns regarding routing of transmission lines and placement of poles that would be potentially disruptive to agriculture operations. This includes the use of monopoles rather than "H" poles, wherever it is practical. MATL has entered into multiple landowner agreements should this project receive final approval and concurs with recommendations in the DEQ report. Landowners must be fairly compensated and treated with the up-most dignity... Comment 812 Comment 813

The MATL line will improve the reliability of the electric transmission system in both Montana and Alberta by making these regions less vulnerable to outages, brownouts, and creating a greater opportunity to import and export electricity, which can be of benefit to consumers and suppliers. It's predicted the United States within a few years could experience a serious energy shortage due to increased demand and the cancellation of many proposed coal fired generation projects in the U.S. because of global warming and environmental concerns. It's absolutely imperative we now develop this country's green and clean energy resources for our generation and future generations to come. Comment 814 Comment 815 Comment 816

It is important to note that MATL is a "merchant line" and the large capital investment and risk is made by the banks and private investors rather than by local taxpayers in Montana and Alberta. Comment 817

We urge your approval of the MATL application without costly and unnecessary delays that could very well jeopardize the entire project. The final routing decision should be fair to all parties, MATL and landowners, striking a fair balance between what makes sense economically and addresses the most sensitive issues in a responsible and proper manner. Comment 818

L202

Response 809 to 811: Comments noted.

Response 812 and 813: See the discussion of Farming Issues in the Consolidated Responses section.

Response 814 to 818: Comments noted.

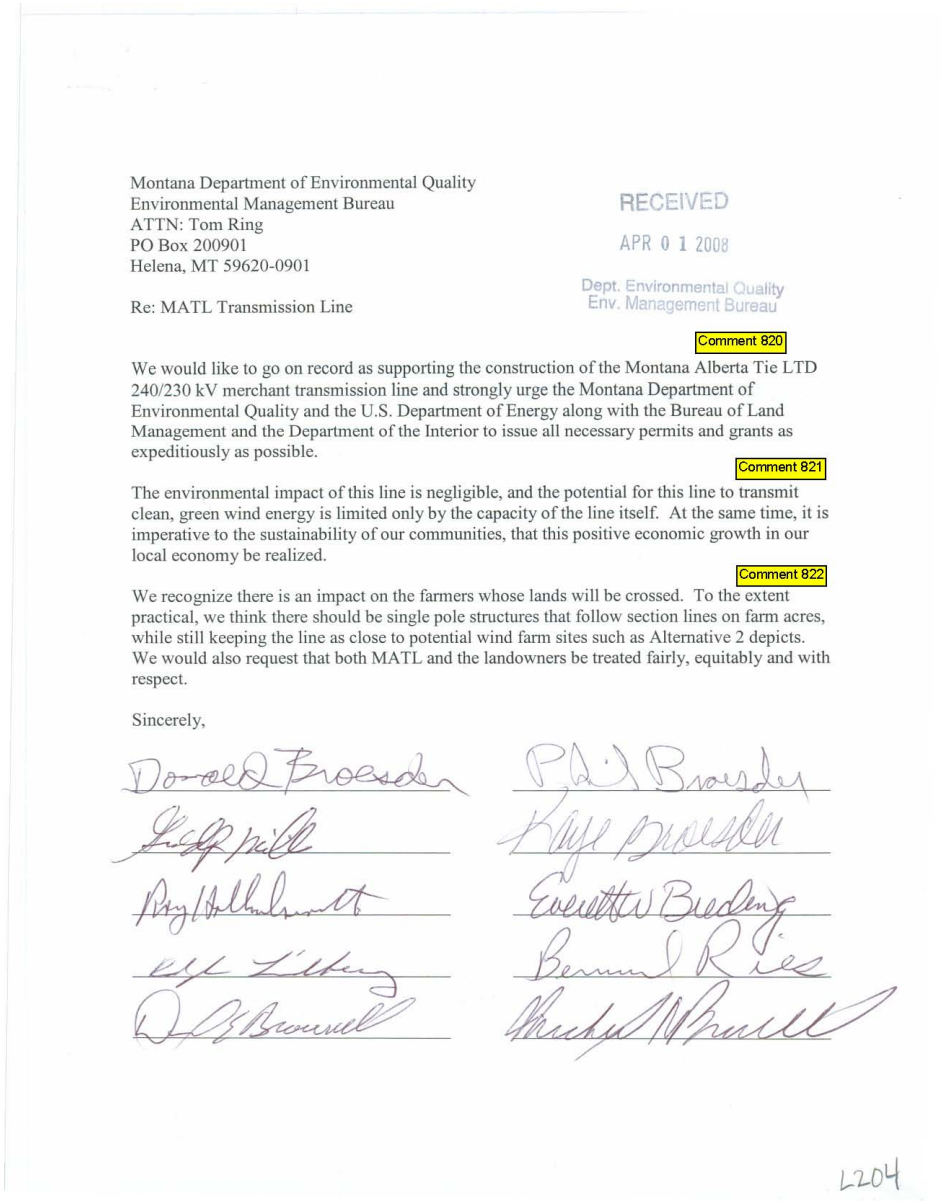
Comment 819

A good analogy is, "it would be like connecting power cables to a huge battery that moves the economic engine of development". Let's move forward and approve the MATL project for Montana. We respectfully ask for your positive and thoughtful far-reaching decision for our great state.

Senator Jerry Black
Senator Roy Brown
Senator John Brueggman
Senator Aubyn Curtis
Senator Jeff Essmann
Senator Kelly Gebhardt
Senator Kim Gillan
Senator Ken Hanson
Senator Rick Laibbe
Senator Lane Larson
Senator Jesse Laslovich
Senator Dave Lewis
Senator Jim Peterson
Senator Trudi Schmidt
Senator Frank Smith
Senator Don Ryan
Senator Joe Tropila
Senator Don Steinbeisser
Senator Keith Bales

Representative Llew Jones
Representative Tim Callahan
Representative Edith Clark
Representative Sue Dickenson
Representative Julie French
Representative Ralph Heinert
Representative Gordon Hendrick
Representative Pat Ingraham
Representative Harry Klock
Representative Bob Lake
Representative Scott Mendenhall
Representative Bill Nooney
Representative Jesse O'Hara
Representative Alan Olson
Representative Mike Phillips
Representative Rick Ripley
Representative Jon Sesso
Representative Wayne Stahl
Representative John Ward
Representative Bill Wilson
Representative Jonathan Windy Boy
Representative Ken Peterson
Representative Gary MacLaren
Representative John Parker
Representative Bill Beck
Representative Mike Milburn
Representative Duane Ankney

Response 819: Comments noted.



Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

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Dept. Environmental Quality
Env. Management Bureau

Re: MATL Transmission Line

Comment 820

We would like to go on record as supporting the construction of the Montana Alberta Tie LTD 240/230 kV merchant transmission line and strongly urge the Montana Department of Environmental Quality and the U.S. Department of Energy along with the Bureau of Land Management and the Department of the Interior to issue all necessary permits and grants as expeditiously as possible.

Comment 821

The environmental impact of this line is negligible, and the potential for this line to transmit clean, green wind energy is limited only by the capacity of the line itself. At the same time, it is imperative to the sustainability of our communities, that this positive economic growth in our local economy be realized.

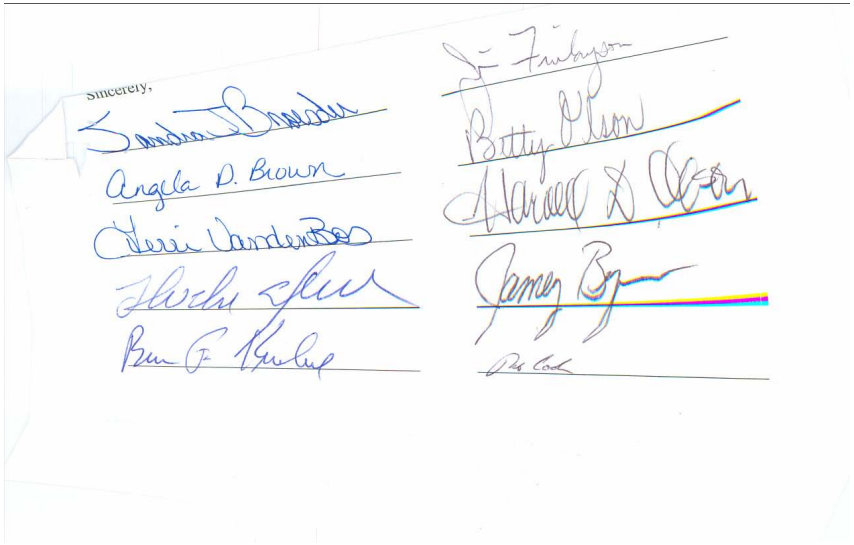
Comment 822

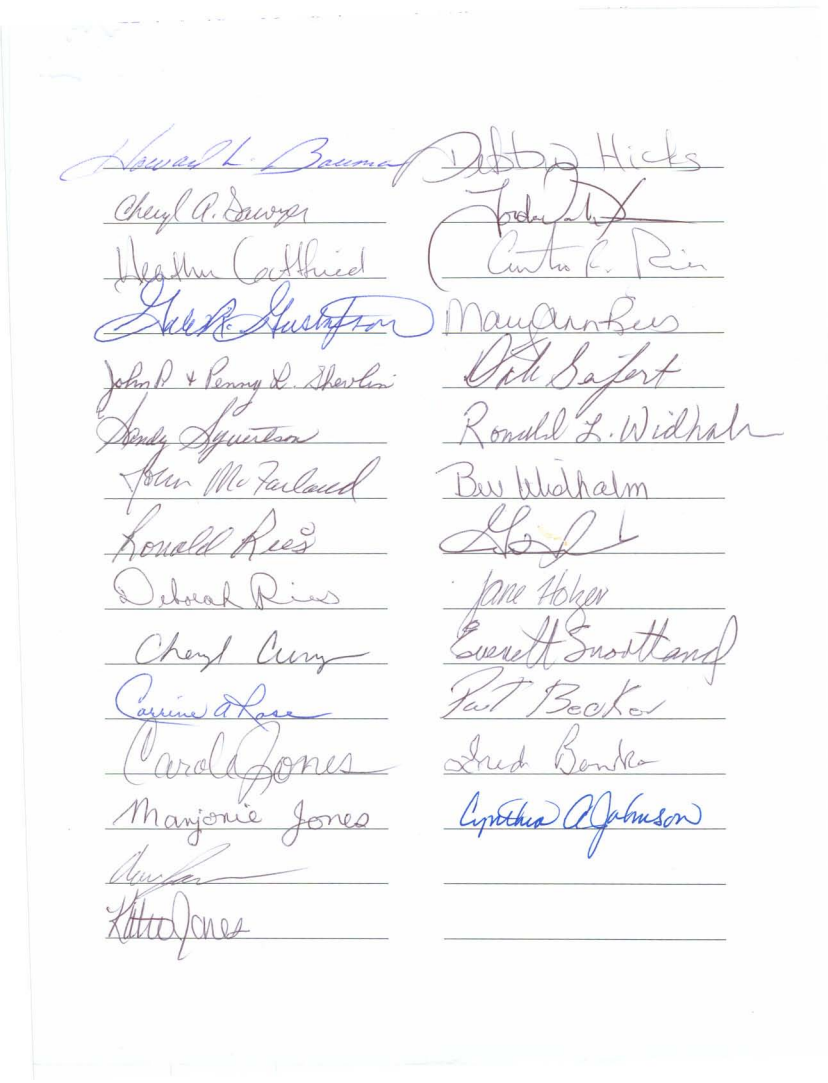
We recognize there is an impact on the farmers whose lands will be crossed. To the extent practical, we think there should be single pole structures that follow section lines on farm acres, while still keeping the line as close to potential wind farm sites such as Alternative 2 depicts. We would also request that both MATL and the landowners be treated fairly, equitably and with respect.

Sincerely,

L204

Response 820 to 822: Comments noted. See Farming Issues and Socioeconomic Issues in the Consolidated Responses section. Additional signatures to this letter are on the next page.


Sincerely,
Angela D. Brown


Cheryl A. Sawyer
Heather Cathcart
John P. + Penny L. Sherlin
Deborah Rees
Cheryl Curry
Carol A. Jones
Marjorie Jones
Hicks
Curtis L. Rice
Mary Ann Rees
Ron Widhalm
Jane Hoker
Everett Smotherman
Pat Becker
Linda Bonker
Cynthia A. Johnson

Dr. Robert and Ali Newkirk
P.O. Box 110
Dupuyer, MT 59432
(406) 472-3388

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Env. Management Bureau

March 31, 2008

Tom Ring
Environmental Sciences Specialist
Montana DEQ
P.O. Box 200901
Helena, MT 59602

Dear Mr. Ring:

Comment 823

We are writing to express our support of the MATL electric transmission line proposed to be built between Lethbridge, Alberta and Great Falls, Montana.

We believe that is an important energy and economic project for the people of our state and even the country.

Comment 824

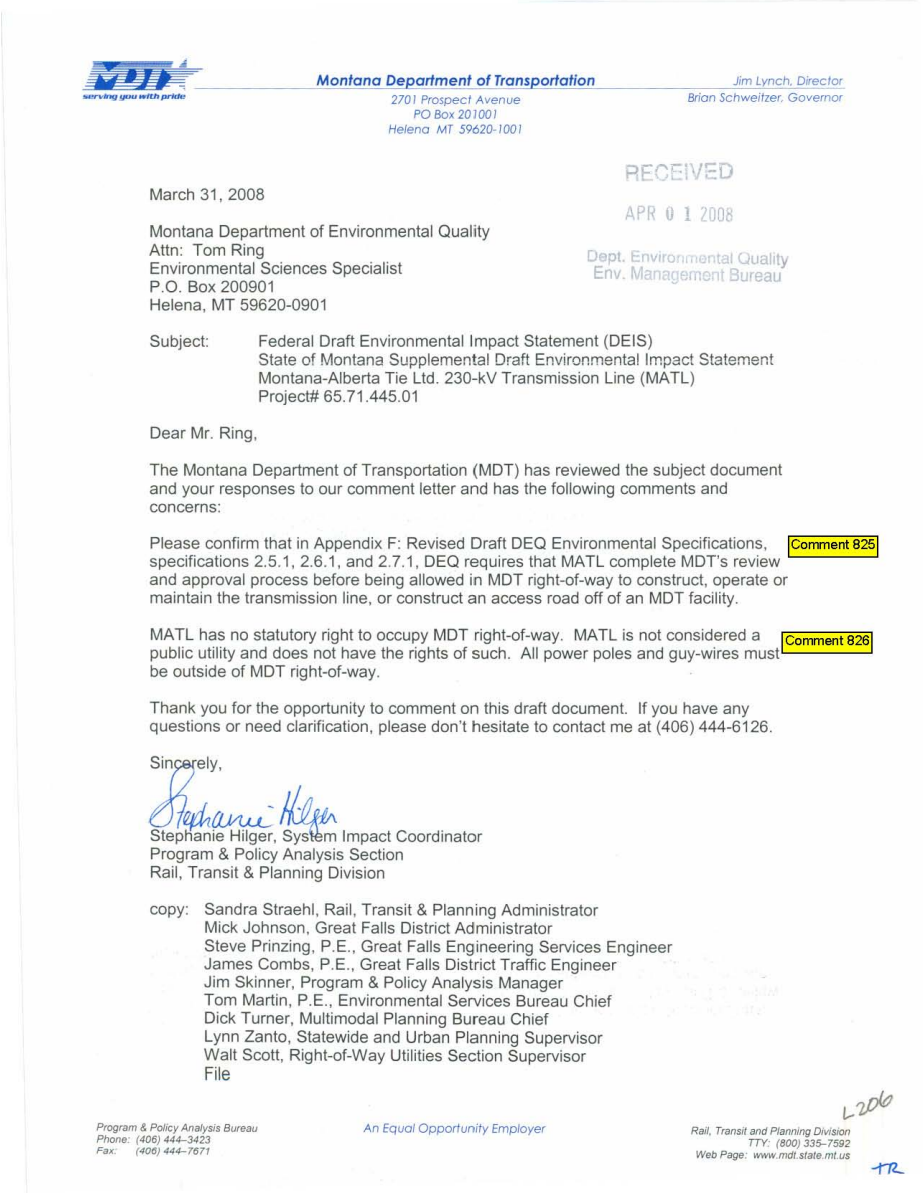
Thank you for your consideration.

Sincerely,

Dr. Robert Newkirk Ali Newkirk

L205

Response 823 and 824: Comments noted.



Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Jim Lynch, Director
Brian Schweitzer, Governor

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Env. Management Bureau

March 31, 2008

Montana Department of Environmental Quality
Attn: Tom Ring
Environmental Sciences Specialist
P.O. Box 200901
Helena, MT 59620-0901

Subject: Federal Draft Environmental Impact Statement (DEIS)
State of Montana Supplemental Draft Environmental Impact Statement
Montana-Alberta Tie Ltd. 230-kV Transmission Line (MATL)
Project# 65.71.445.01

Dear Mr. Ring,

The Montana Department of Transportation (MDT) has reviewed the subject document and your responses to our comment letter and has the following comments and concerns:

Please confirm that in Appendix F: Revised Draft DEQ Environmental Specifications, specifications 2.5.1, 2.6.1, and 2.7.1, DEQ requires that MATL complete MDT's review and approval process before being allowed in MDT right-of-way to construct, operate or maintain the transmission line, or construct an access road off of an MDT facility. Comment 825

MATL has no statutory right to occupy MDT right-of-way. MATL is not considered a public utility and does not have the rights of such. All power poles and guy-wires must be outside of MDT right-of-way. Comment 826

Thank you for the opportunity to comment on this draft document. If you have any questions or need clarification, please don't hesitate to contact me at (406) 444-6126.

Sincerely,

Stephanie Hilger

Stephanie Hilger, System Impact Coordinator
Program & Policy Analysis Section
Rail, Transit & Planning Division

copy: Sandra Straehl, Rail, Transit & Planning Administrator
Mick Johnson, Great Falls District Administrator
Steve Prinzing, P.E., Great Falls Engineering Services Engineer
James Combs, P.E., Great Falls District Traffic Engineer
Jim Skinner, Program & Policy Analysis Manager
Tom Martin, P.E., Environmental Services Bureau Chief
Dick Turner, Multimodal Planning Bureau Chief
Lynn Zanto, Statewide and Urban Planning Supervisor
Walt Scott, Right-of-Way Utilities Section Supervisor
File

L206

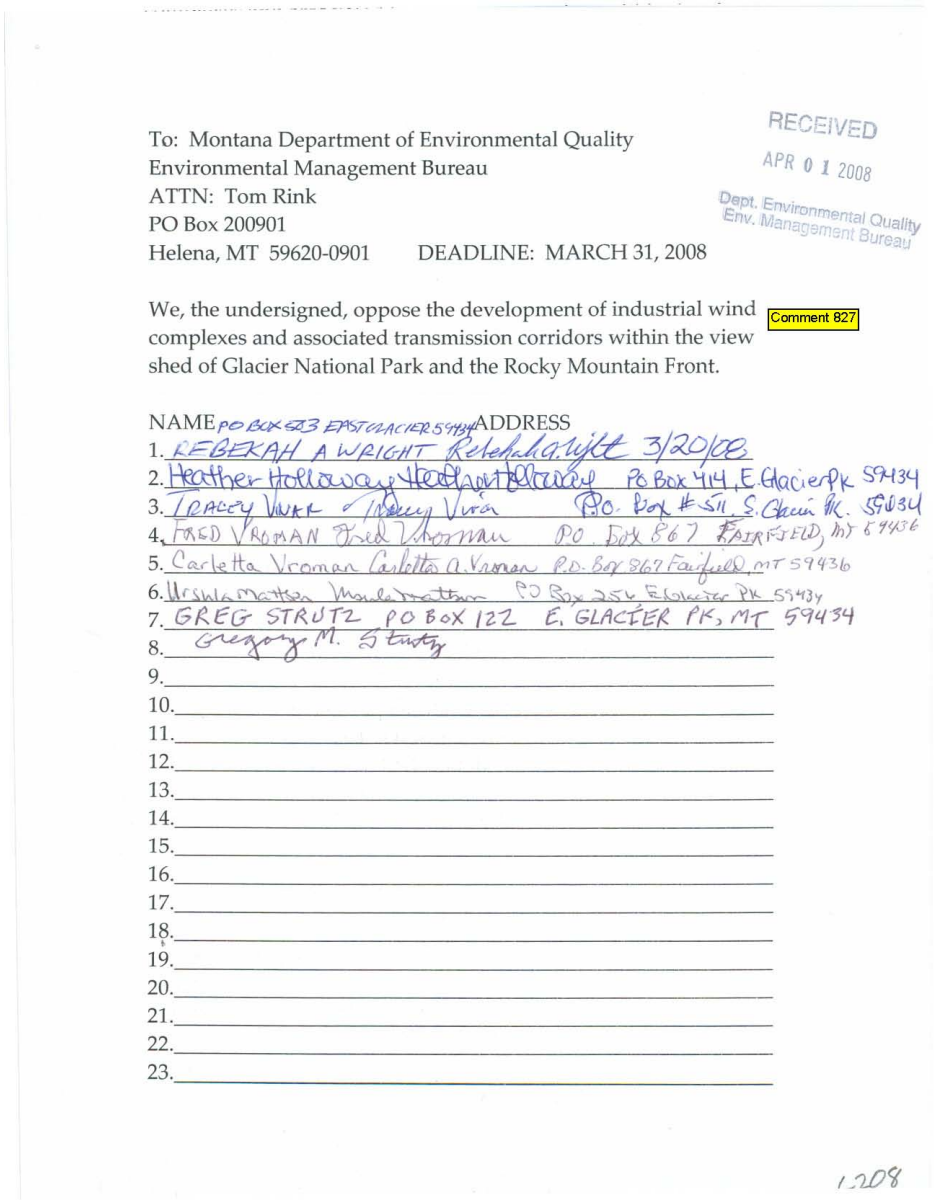
Program & Policy Analysis Bureau
Phone: (406) 444-3423
Fax: (406) 444-7671

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Rail, Transit and Planning Division
TTY: (800) 335-7592
Web Page: www.mdt.state.mt.us

TR

Response 825 and 826: See revised Appendix F, Sections 2.6.1 and 2.7.1.



To: Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Rink
PO Box 200901
Helena, MT 59620-0901 DEADLINE: MARCH 31, 2008

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Env. Management Bureau

We, the undersigned, oppose the development of industrial wind complexes and associated transmission corridors within the view shed of Glacier National Park and the Rocky Mountain Front.

Comment 827

NAME PO BOX 523 EAST GLACIER 59434 ADDRESS

1. REBEKAH A WRIGHT Rebekah A. Wright 3/20/08
2. Heather Holloway Heather Holloway PO Box 414, E. Glacier Pk 59434
3. TRACEY VUKE Tracey Vuke P.O. Box #511, S. Glacier Pk. 59834
4. FRED VROMAN Fred Vroman P.O. Box 867 FAIRFIELD, MT 59436
5. Carletta Vroman Carletta A. Vroman P.O. Box 867 Fairfield, MT 59436
6. Ursula Mattson Ursula Mattson PO Box 254, E Glacier Pk 59434
7. GREG STRUTZ PO BOX 122 E. GLACIER PK, MT 59434
8. Gregory M. Stutzy
9.
10.
11.
12.
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23.

1208

Response 827: Comments noted. See Visual Issues in the Consolidated Responses section.

Greg Hallsten, MEPA Coordinator
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Re: MATL Draft EIS

Dear Mr. Hallsten,

In my initial letter to you, regarding the Montana Alberta Tie Ltd. and dated April 26, 2007, my comments ran to more than1000 words. Today, I will be brief.

Comment 828

In responding to my concern about the visual impact of giant industrial wind farms on Montana's landscapes, the staff response was, in part, as follows: "*Both the transmission line and wind turbines would introduce linear elements into viewed landscapes. It is unlikely these structures would conceal or hide surrounding mountain ranges. Whether this constitutes industrial development that degrades scenic vistas is a value judgement.*" [*Response 297,* MATL Draft EIS]

I can only say, in reaction to this kind of reassurance, that it offers me little in the way of comfort. However, it does help to explain the thought process behind the making of these remarkable, often environment-altering decisions, on behalf of the citizens of Montana.

Sincerely yours,

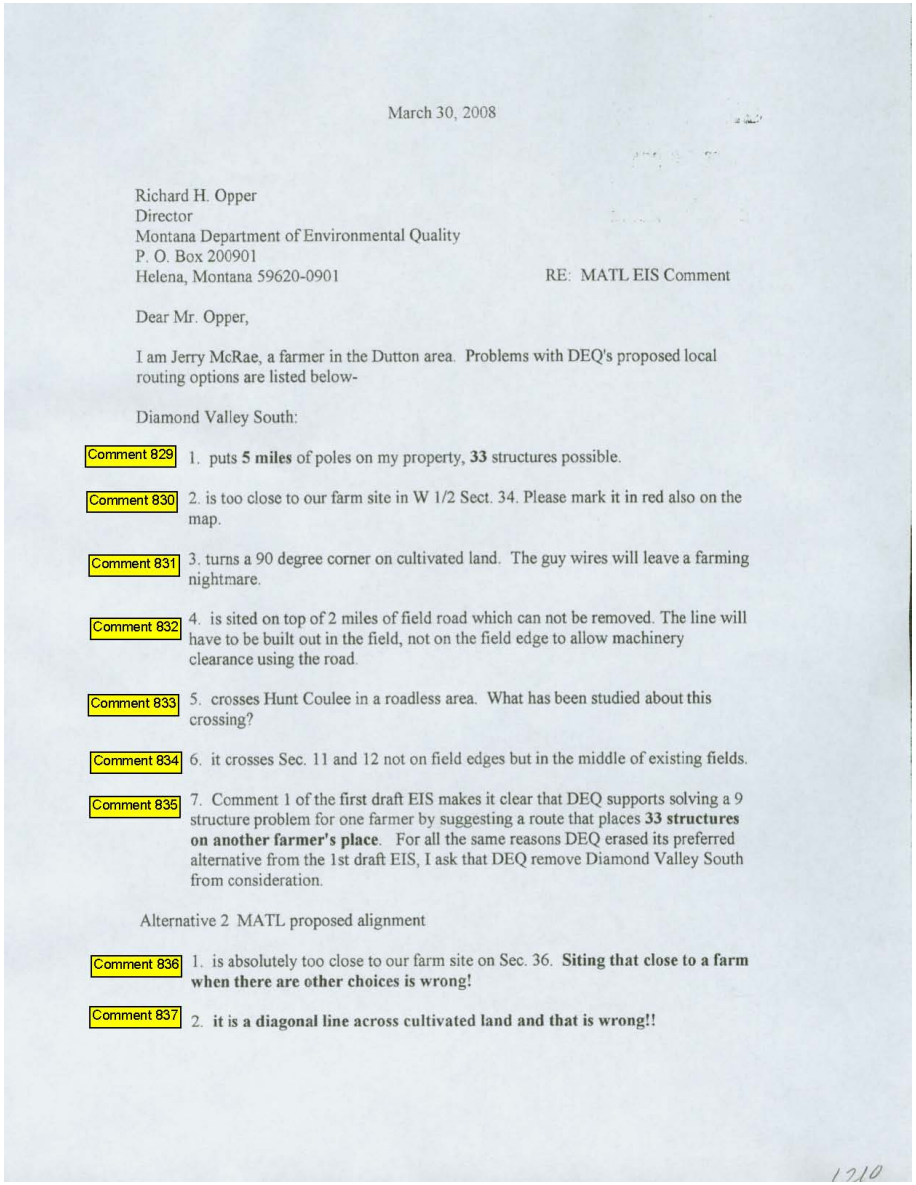
Philip Perszyk
620 Evans
Missoula, MT 59801

March 31, 2008

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DEQ
DIRECTOR'S OFFICE

L209

Response 828: Comment noted. See Visual Issues in the Consolidated Responses section.



March 30, 2008

Richard H. Opper
Director
Montana Department of Environmental Quality
P. O. Box 200901
Helena, Montana 59620-0901

RE: MATL EIS Comment

Dear Mr. Opper,

I am Jerry McRae, a farmer in the Dutton area. Problems with DEQ's proposed local routing options are listed below-

Diamond Valley South:

Comment 829 1. puts **5 miles** of poles on my property, **33** structures possible.

Comment 830 2. is too close to our farm site in W 1/2 Sect. 34. Please mark it in red also on the map.

Comment 831 3. turns a 90 degree corner on cultivated land. The guy wires will leave a farming nightmare.

Comment 832 4. is sited on top of 2 miles of field road which can not be removed. The line will have to be built out in the field, not on the field edge to allow machinery clearance using the road.

Comment 833 5. crosses Hunt Coulee in a roadless area. What has been studied about this crossing?

Comment 834 6. it crosses Sec. 11 and 12 not on field edges but in the middle of existing fields.

Comment 835 7. Comment 1 of the first draft EIS makes it clear that DEQ supports solving a 9 structure problem for one farmer by suggesting a route that places **33 structures on another farmer's place**. For all the same reasons DEQ erased its preferred alternative from the 1st draft EIS, I ask that DEQ remove Diamond Valley South from consideration.

Alternative 2 MATL proposed alignment

Comment 836 1. is absolutely too close to our farm site on Sec. 36. **Siting that close to a farm when there are other choices is wrong!**

Comment 837 2. **it is a diagonal line across cultivated land and that is wrong!!**

1210

Response 829 to 832: Figure 2.6-2 has been updated to include the house that was inadvertently omitted. Also see the responses to comments 708 and 709.

Response 833: Hunt Coulee is located on private land and does not have a road that crosses the draw at the Diamond Valley South crossing of the draw. A small pond is located near the crossing and the area is indicated as winter range in MATL's application. Where possible, such coulees are typically spanned. If this alignment were selected, design of the line and final structure location would occur after the agencies reach their decisions. If the goal is to avoid constructing new roads on the steep erosion prone slopes, access would likely be from each side of the coulee, and construction and maintenance traffic would have to drive out and around to access each side of the coulee rather than directly across the coulee. Alternative 2 is located near a private road that crosses the coulee. However, this road is located off the right-of-way and additional easements would be necessary to use it for construction.

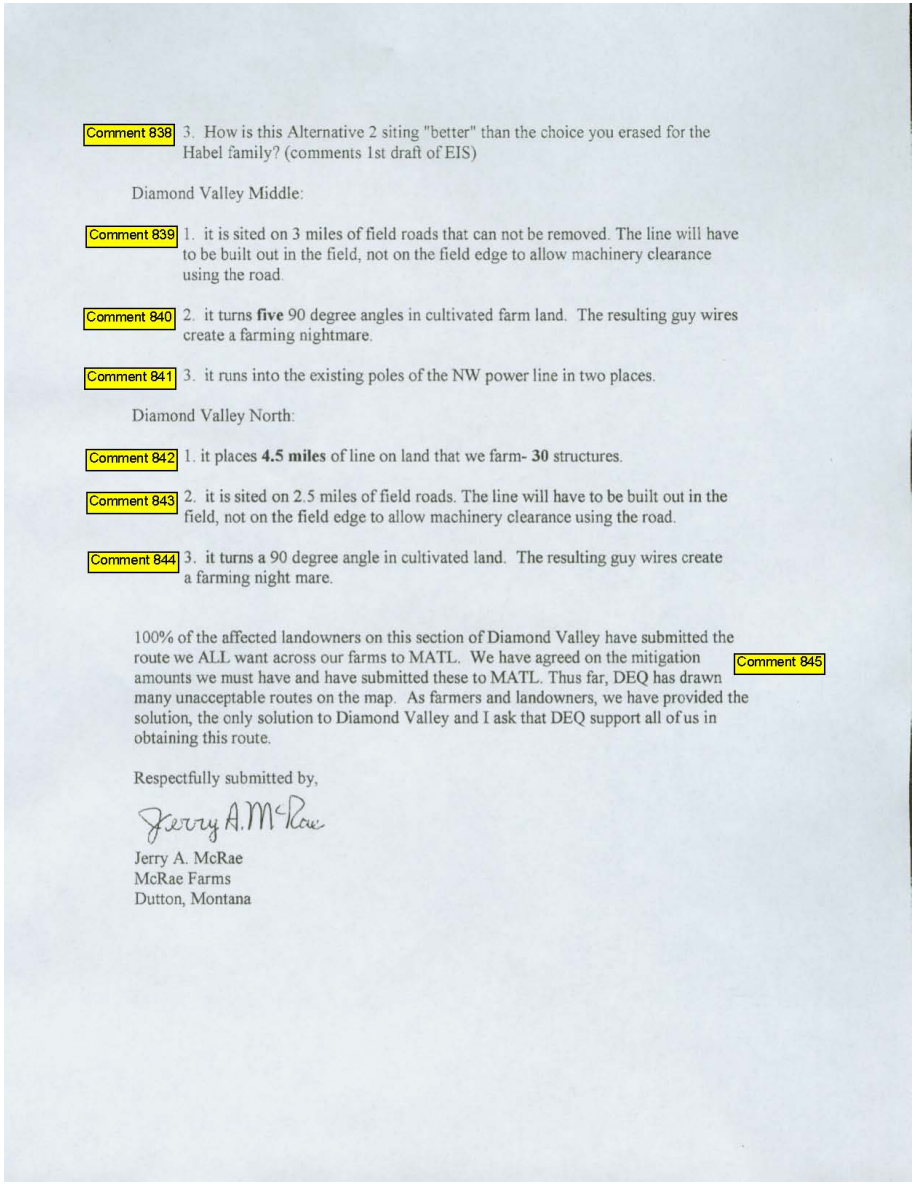
Response 834: Comment noted.

Response 835: In discussions during the development of the local routing option for the original March 2007 document, DEQ staff was led to believe that there was consensus among the landowners in the Diamond Valley area to move the line farther away from two homes and parallel to an existing transmission line. As indicated by the Draft EIS comment you cited, there was not consensus among area landowners. Therefore, DEQ determined there was a need to examine other possible alternatives in this area. A mailing list of landowners in the area was developed from the Department of Revenue database of property owners and a letter was

sent inviting them to a meeting to discuss other alignment options.

The agencies received two letters of comment opposing the Diamond Valley South local routing option because it would be located along a field road. The agencies received no letters or testimony supporting this local routing option. When making their decision, the agencies will consider this input indicating there is no local support for the Diamond Valley South local routing option.

Response 836 and 837: Comments noted. Also see Farming Issues in the Consolidated Responses section.



Comment 838 3. How is this Alternative 2 siting "better" than the choice you erased for the Habel family? (comments 1st draft of EIS)

Diamond Valley Middle:

Comment 839 1. it is sited on 3 miles of field roads that can not be removed. The line will have to be built out in the field, not on the field edge to allow machinery clearance using the road.

Comment 840 2. it turns **five** 90 degree angles in cultivated farm land. The resulting guy wires create a farming nightmare.

Comment 841 3. it runs into the existing poles of the NW power line in two places.

Diamond Valley North:

Comment 842 1. it places **4.5 miles** of line on land that we farm- **30** structures.

Comment 843 2. it is sited on 2.5 miles of field roads. The line will have to be built out in the field, not on the field edge to allow machinery clearance using the road.

Comment 844 3. it turns a 90 degree angle in cultivated land. The resulting guy wires create a farming night mare.

100% of the affected landowners on this section of Diamond Valley have submitted the route we ALL want across our farms to MATL. We have agreed on the mitigation amounts we must have and have submitted these to MATL. Thus far, DEQ has drawn many unacceptable routes on the map. As farmers and landowners, we have provided the solution, the only solution to Diamond Valley and I ask that DEQ support all of us in obtaining this route. Comment 845

Respectfully submitted by,

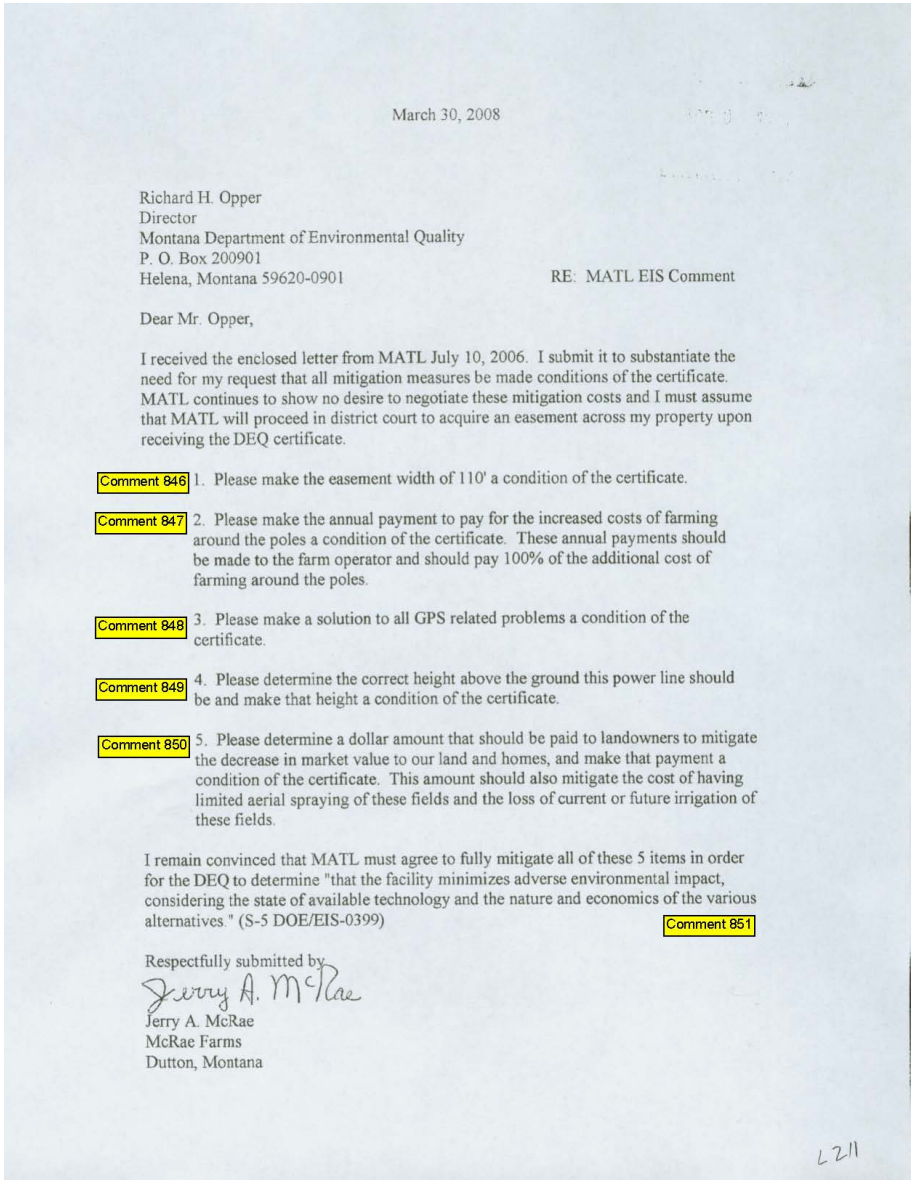
Jerry A. McRae

Jerry A. McRae
McRae Farms
Dutton, Montana

Response 838: DEQ is looking for the lowest impact alignment while considering the nature and economics of the various alternatives and will make its finding independent of which private landowners' lands would be crossed. In the Diamond Valley area Alternative 2 does not closely parallel an existing line where maneuvering equipment between two sets of poles may prove difficult or impossible depending on final line location. Alternative 2 is shorter than the now dropped Diamond Valley portion of Alternative 4 in the March 2007 document and therefore is likely to have fewer structures located in fields. Alternative 2 also has fewer guyed angles than would the other now dropped alternative. Alternative 2 is not located adjacent to any field roads and therefore would have a lower overall number of structures in mid-field locations. However, as indicated in response to comment 835, Alternative 2 is located much closer to two houses, resulting in greater visual impacts.

Responses 839 to 844: Comments noted.

Response 845: The agencies are considering the route submitted by Mr. McRae, as well as the compensation amounts.



March 30, 2008

Richard H. Opper
Director
Montana Department of Environmental Quality
P. O. Box 200901
Helena, Montana 59620-0901

RE: MATL EIS Comment

Dear Mr. Opper,

I received the enclosed letter from MATL July 10, 2006. I submit it to substantiate the need for my request that all mitigation measures be made conditions of the certificate. MATL continues to show no desire to negotiate these mitigation costs and I must assume that MATL will proceed in district court to acquire an easement across my property upon receiving the DEQ certificate.

Comment 846 1. Please make the easement width of 110' a condition of the certificate.

Comment 847 2. Please make the annual payment to pay for the increased costs of farming around the poles a condition of the certificate. These annual payments should be made to the farm operator and should pay 100% of the additional cost of farming around the poles.

Comment 848 3. Please make a solution to all GPS related problems a condition of the certificate.

Comment 849 4. Please determine the correct height above the ground this power line should be and make that height a condition of the certificate.

Comment 850 5. Please determine a dollar amount that should be paid to landowners to mitigate the decrease in market value to our land and homes, and make that payment a condition of the certificate. This amount should also mitigate the cost of having limited aerial spraying of these fields and the loss of current or future irrigation of these fields.

I remain convinced that MATL must agree to fully mitigate all of these 5 items in order for the DEQ to determine "that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives." (S-5 DOE/EIS-0399) Comment 851

Respectfully submitted by,

Jerry A. McRae

Jerry A. McRae
McRae Farms
Dutton, Montana

L211

Response 846: MATL has revised its proposal to increase the easement width to 105 feet. See Section 2.3.

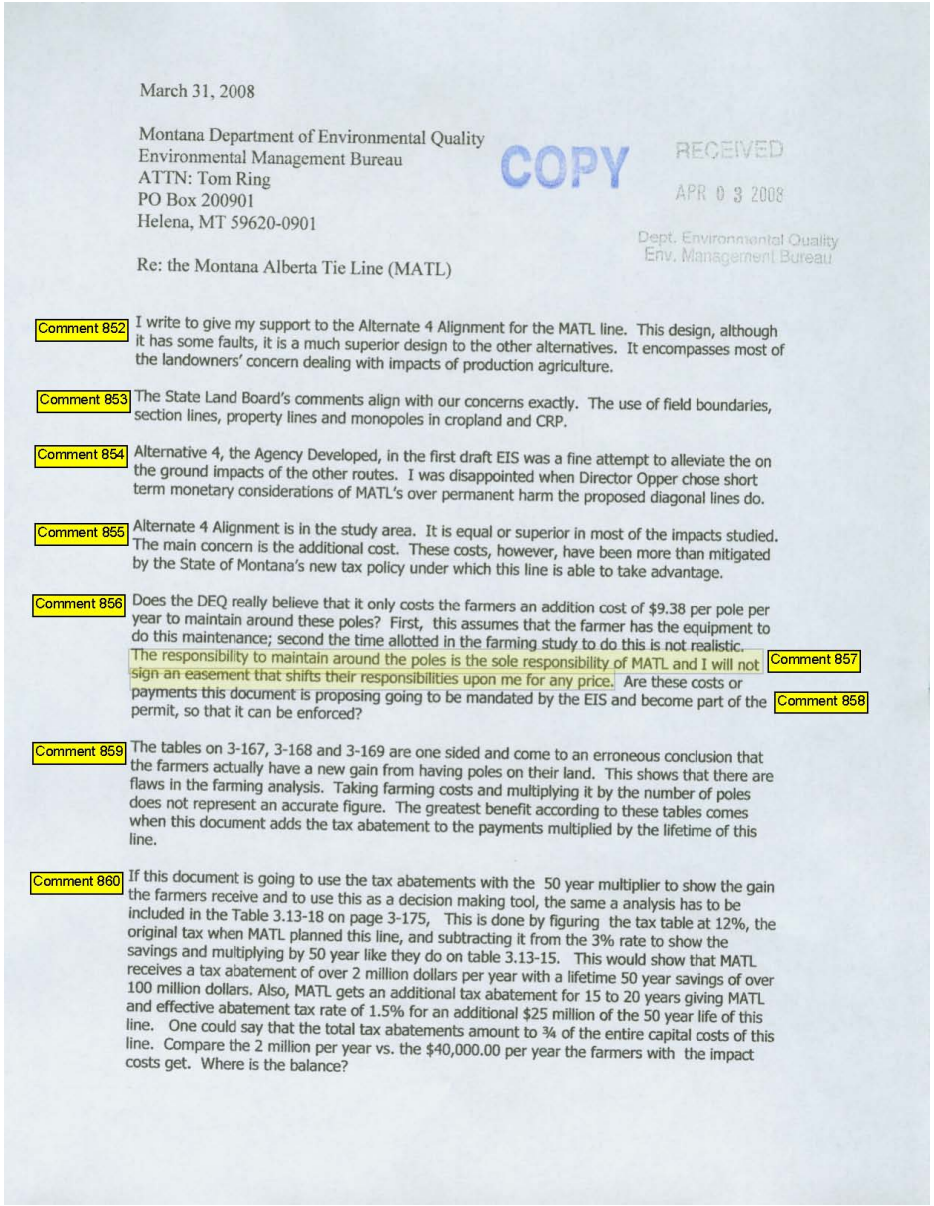
Response 847: MATL's compensation package is part of the overall project. MATL has revised its proposed compensation package. See Sections 2.3 and 3.13.2, and Farming Issues in the Consolidated Responses section.

Response 848: The Revised Draft DEQ Environmental Specifications include correction of problems of interference with GPS by the MATL line.

Response 849: MATL has revised the minimum ground clearance for the conductor to 27.2 feet where the line would cross cultivated and CRP land. Also see Safety Issues in the Consolidated Responses section.

Response 850: DEQ will not become involved in the compensation negotiations. Also see the response to comment 847 and Legal and Regulatory Issues in the Consolidated Responses section.

Response 851: Comment noted.



March 31, 2008

Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

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Env. Management Bureau

Re: the Montana Alberta Tie Line (MATL)

Comment 852 I write to give my support to the Alternate 4 Alignment for the MATL line. This design, although it has some faults, it is a much superior design to the other alternatives. It encompasses most of the landowners' concern dealing with impacts of production agriculture.

Comment 853 The State Land Board's comments align with our concerns exactly. The use of field boundaries, section lines, property lines and monopoles in cropland and CRP.

Comment 854 Alternative 4, the Agency Developed, in the first draft EIS was a fine attempt to alleviate the on the ground impacts of the other routes. I was disappointed when Director Opper chose short term monetary considerations of MATL's over permanent harm the proposed diagonal lines do.

Comment 855 Alternate 4 Alignment is in the study area. It is equal or superior in most of the impacts studied. The main concern is the additional cost. These costs, however, have been more than mitigated by the State of Montana's new tax policy under which this line is able to take advantage.

Comment 856 Does the DEQ really believe that it only costs the farmers an addition cost of $9.38 per pole per year to maintain around these poles? First, this assumes that the farmer has the equipment to do this maintenance; second the time allotted in the farming study to do this is not realistic. The responsibility to maintain around the poles is the sole responsibility of MATL and I will not sign an easement that shifts their responsibilities upon me for any price. Comment 857 Are these costs or payments this document is proposing going to be mandated by the EIS and become part of the permit, so that it can be enforced? Comment 858

Comment 859 The tables on 3-167, 3-168 and 3-169 are one sided and come to an erroneous conclusion that the farmers actually have a new gain from having poles on their land. This shows that there are flaws in the farming analysis. Taking farming costs and multiplying it by the number of poles does not represent an accurate figure. The greatest benefit according to these tables comes when this document adds the tax abatement to the payments multiplied by the lifetime of this line.

Comment 860 If this document is going to use the tax abatements with the 50 year multiplier to show the gain the farmers receive and to use this as a decision making tool, the same a analysis has to be included in the Table 3.13-18 on page 3-175, This is done by figuring the tax table at 12%, the original tax when MATL planned this line, and subtracting it from the 3% rate to show the savings and multiplying by 50 year like they do on table 3.13-15. This would show that MATL receives a tax abatement of over 2 million dollars per year with a lifetime 50 year savings of over 100 million dollars. Also, MATL gets an additional tax abatement for 15 to 20 years giving MATL and effective abatement tax rate of 1.5% for an additional $25 million of the 50 year life of this line. One could say that the total tax abatements amount to ¾ of the entire capital costs of this line. Compare the 2 million per year vs. the $40,000.00 per year the farmers with the impact costs get. Where is the balance?

Response 852: Comment noted.

Response 853: Comment noted.

Response 854: The tentative identification of a preferred alternative in the EIS is based on many factors, not just economics. DEQ's ultimate decision will be disclosed when it determines whether to issue a Certificate of Compliance.

Response 855: See Tax Issues in the Consolidated Responses section.

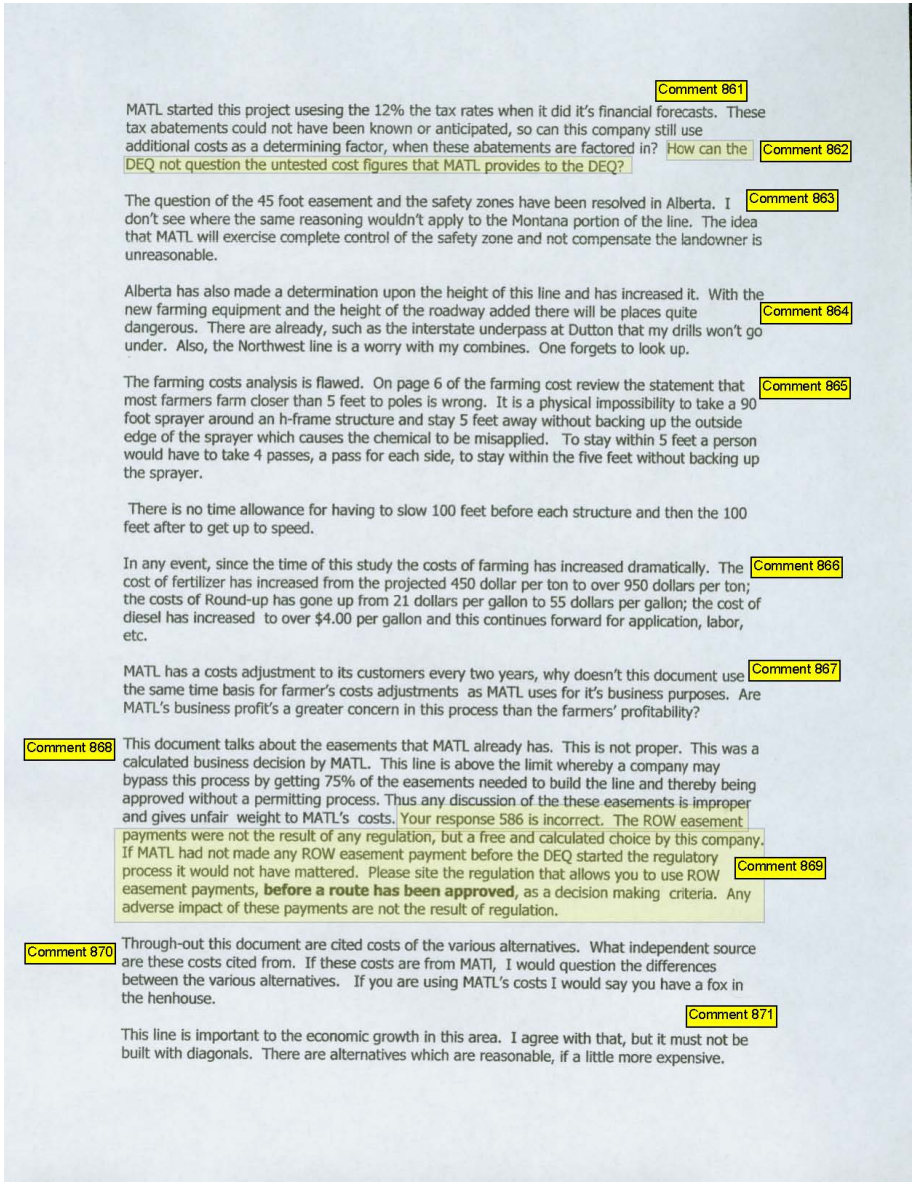
Response 856: The $9.38 was the original figure MATL calculated for farmer cost. It was neither a DEQ-generated figure nor did it reflect DEQ conclusions. MATL has since generated a new average figure of $33.90 per pole per year. See Section 3.13.3.2.

Response 857: Comment noted.

Response 858: The EIS, as an impact disclosure document, can identify mitigation measures, such as compensation, but cannot require them. Any mitigation measures DEQ imposes on MATL must be within the authority of the Major Facility Siting Act to impose or must be attached to the Certificate at MATL's request. Any conditions on the Certificate are enforceable. If the project is approved, DEQ would mandate payments for damages during construction. See the discussions of Legal and Regulatory Issues and Farming Issues in the Consolidated Responses section. Also see Sections 2.3 and 3.13.3.2.

Response 859: The analysis and tables referred to in the comment have been revised. See Section 3.13. The information provided in those tables is for a general comparison of alternatives across all landowners and not for individual farmers. Individual costs could vary based on individual farming practices.

Response 860: See the discussion of Tax Issues in the Consolidated Responses section. The tax incentive to farmers is no longer included in the tables that balance benefits and costs to farmers. It is included as a separate item. The lower tax rate to MATL is also included in revised Section 3.13.



Comment 861

MATL started this project usesing the 12% the tax rates when it did it's financial forecasts. These tax abatements could not have been known or anticipated, so can this company still use additional costs as a determining factor, when these abatements are factored in? How can the DEQ not question the untested cost figures that MATL provides to the DEQ?

Comment 862

Comment 863

The question of the 45 foot easement and the safety zones have been resolved in Alberta. I don't see where the same reasoning wouldn't apply to the Montana portion of the line. The idea that MATL will exercise complete control of the safety zone and not compensate the landowner is unreasonable.

Alberta has also made a determination upon the height of this line and has increased it. With the new farming equipment and the height of the roadway added there will be places quite dangerous. There are already, such as the interstate underpass at Dutton that my drills won't go under. Also, the Northwest line is a worry with my combines. One forgets to look up.

Comment 864

Comment 865

The farming costs analysis is flawed. On page 6 of the farming cost review the statement that most farmers farm closer than 5 feet to poles is wrong. It is a physical impossibility to take a 90 foot sprayer around an h-frame structure and stay 5 feet away without backing up the outside edge of the sprayer which causes the chemical to be misapplied. To stay within 5 feet a person would have to take 4 passes, a pass for each side, to stay within the five feet without backing up the sprayer.

There is no time allowance for having to slow 100 feet before each structure and then the 100 feet after to get up to speed.

Comment 866

In any event, since the time of this study the costs of farming has increased dramatically. The cost of fertilizer has increased from the projected 450 dollar per ton to over 950 dollars per ton; the costs of Round-up has gone up from 21 dollars per gallon to 55 dollars per gallon; the cost of diesel has increased to over $4.00 per gallon and this continues forward for application, labor, etc.

Comment 867

MATL has a costs adjustment to its customers every two years, why doesn't this document use the same time basis for farmer's costs adjustments as MATL uses for it's business purposes. Are MATL's business profit's a greater concern in this process than the farmers' profitability?

Comment 868

This document talks about the easements that MATL already has. This is not proper. This was a calculated business decision by MATL. This line is above the limit whereby a company may bypass this process by getting 75% of the easements needed to build the line and thereby being approved without a permitting process. Thus any discussion of the these easements is improper and gives unfair weight to MATL's costs. Your response 586 is incorrect. The ROW easement payments were not the result of any regulation, but a free and calculated choice by this company. If MATL had not made any ROW easement payment before the DEQ started the regulatory process it would not have mattered. Please site the regulation that allows you to use ROW easement payments, **before a route has been approved**, as a decision making criteria. Any adverse impact of these payments are not the result of regulation.

Comment 869

Comment 870

Through-out this document are cited costs of the various alternatives. What independent source are these costs cited from. If these costs are from MATI, I would question the differences between the various alternatives. If you are using MATL's costs I would say you have a fox in the henhouse.

Comment 871

This line is important to the economic growth in this area. I agree with that, but it must not be built with diagonals. There are alternatives which are reasonable, if a little more expensive.

Response 861: The Major Facility Siting Act requires DEQ to make findings that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and that the facility will serve the public interest, convenience, and necessity. Decision makers will weigh many aspects of project viability in making this finding and before making their decisions.

Response 862: The agencies contracted with an independent consulting firm, HDR in Billings, MT, to review MATL's costs. HDR compared the MATL costs to similar projects they have completed or have estimated and agree with the MATL costs at this time. HDR noted that labor and material prices are currently very volatile and cost estimates are subject to change in short periods of time.

Response 863: See the discussion of Farming Issues in the Consolidated Responses section. MATL has revised its proposal to obtain a 105-foot-wide easement.

Response 864: See the discussion of Safety Issues in the Consolidated Responses section.

Response 865: See the discussion of Farming Issues in Consolidated Responses and the response to comment 861. Appendix N indicates that most farmers would farm closer than 5 feet. This does not indicate that all farmers would farm this close, but, for purposes of study, a safety buffer of 5 feet was used. The document indicates that the safety buffer is generally dependent on the specific field, equipment, and operator experience, but in this case a 5-foot safety buffer should be adequate to safely clear the pole(s) using typical equipment while still optimizing farmed area. Conservative assumptions were used in the farming cost study in order to

avoid underestimating costs for farmers. However, individual operators will have their own preferences on factors such as equipment speed and how close to a structure to farm.

Response 866: See the discussion of Farming Issues in the Consolidated Responses section.

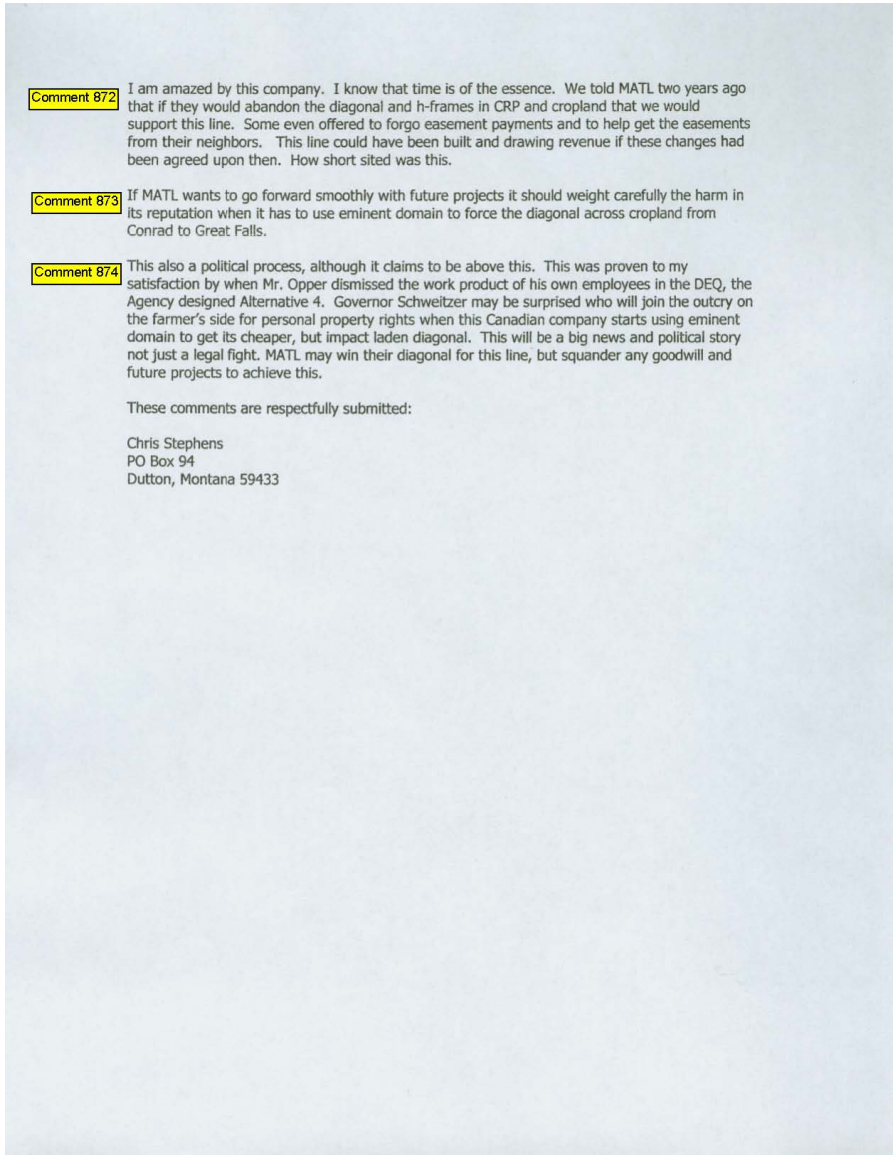
Response 867: Comment noted. See the discussion of Farming Issues in the Consolidated Responses section.

Response 868: If MATL already paid for right-of-way access, and that alternative is not permitted, MATL may lose the money it already spent. To seek easements and pay for routes that have not been permitted by DEQ is a business decision MATL made.

Response 869: See the response to Comment 868. The Montana Environmental Policy Act requires that an EIS disclose the impacts of regulations on an applicant (75-1-201(b)(iv)(D), MCA). Easement payments made on MATL's proposed route would be an adverse economic impact of regulation if another alternative is selected.

Response 870: See the response to comment 862 and the discussion of Farming Issues in the Consolidated Responses section.

Response 871: Comment noted.



Comment 872 I am amazed by this company. I know that time is of the essence. We told MATL two years ago that if they would abandon the diagonal and h-frames in CRP and cropland that we would support this line. Some even offered to forgo easement payments and to help get the easements from their neighbors. This line could have been built and drawing revenue if these changes had been agreed upon then. How short sited was this.

Comment 873 If MATL wants to go forward smoothly with future projects it should weight carefully the harm in its reputation when it has to use eminent domain to force the diagonal across cropland from Conrad to Great Falls.

Comment 874 This also a political process, although it claims to be above this. This was proven to my satisfaction by when Mr. Opper dismissed the work product of his own employees in the DEQ, the Agency designed Alternative 4. Governor Schweitzer may be surprised who will join the outcry on the farmer's side for personal property rights when this Canadian company starts using eminent domain to get its cheaper, but impact laden diagonal. This will be a big news and political story not just a legal fight. MATL may win their diagonal for this line, but squander any goodwill and future projects to achieve this.

These comments are respectfully submitted:

Chris Stephens
PO Box 94
Dutton, Montana 59433

Responses 872 to 874: Comments noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 West 15th Street, Suite 3200
HELENA, MONTANA 59626

Ref: 8MO

March 26, 2008

RECEIVED
MAR 27 2008
DEQ / EMB

Mr. Tom Ring
Environmental Sciences Specialist
Montana Dept. of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-901

Re: CEQ # 20080054, Montana Alberta Tie Ltd. 230-kV International Transmission Line DEIS

Dear Mr. Ring:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement (DEIS) for the Montana Alberta Tie Ltd. (MATL) 230-kV International Transmission Line, in accordance with EPA responsibilities under the National Environmental Policy Act (NEPA), 42 U.S.C. 4231 and Section 309 of the Clean Air Act. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major Federal agency action. The EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document.

Comment 875

The EPA does not object to the proposed construction and operation of the MATL 230-kV transmission line from Great Falls, Montana into Alberta, Canada. Although, we recommend the DOE and MDEQ consider construction of a new modified preferred alternative that would better optimize the many environmental, social and economic trade-offs for this project (i.e., trade-offs in impacts to farm operations and residences, soil erosion during construction, water quality and wetland impacts, impacts to birds and wildlife habitat, costs, etc.). The intent should be to address project purpose and need and the significant issues while minimizing adverse environmental impacts. Evaluation of a modified alternative in the FEIS may also better explain to the public the many trade-offs involved in making transmission line decisions, which may lead to improved public acceptance of decisions. In general desirable features we consider worthy of including in a new modified preferred alternative include:

- minimize soil disturbance and soil erosion by selecting alignments on less erosive soils and that reduce the extent of ground disturbance as much as possible;
- use monopoles rather than H-frame structures wherever possible to reduce soil disturbance and impacts to farm operations;

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Response 875: In assembling the alternatives presented in the EIS, the agencies have attempted to present a full range of reasonable alternatives that optimize the social, economic, and environmental trade-offs associated with the proposed project. Several of the desirable features of a new modified alternative suggested by EPA are included in each of the alternatives analyzed in detail in the EIS, including the applicant's proposed route, Alternative 2. The alternative alignments considered in the EIS provide options to minimize impacts, consistent with the siting criteria suggested in the comment. The agencies will examine the alternatives and consider environmental impacts in making their decisions. The DEQ decision will be based on the findings required by the Major Facility Siting Act. This includes consideration of cost and economics of the various alternatives, in addition to minimization of environmental impacts. Likewise, DOE must consider environmental impact, impact on electric reliability, and any other factors that DOE may consider relevant to the public interest.

- incorporate appropriate construction sediment and erosion control methods and BMPs, as well as weed prevention and control measures during construction;
- minimize new access roads and new road construction, and locate any new roads that may be needed where they have minimal impacts, away from rivers, streams and wetlands;
- minimize stream and lake crossings, and disturbances of wetlands and riparian areas;
- minimize disturbances to sensitive wildlife habitat, and use appropriate mitigation measures to reduce wildlife impacts, particularly transmission line mortality to birds;
- minimize adverse impacts to farm operations and residences;
- minimize fragmentation of open landscapes from a scenic standpoint, and use topographical features to help screen the transmission poles as much as possible;
- consider costs of construction and operation.

We note of course that the MDEQ and DOE will need to evaluate and analyze the impacts of any new modified alternative, and display those impacts in the FEIS.

Comment 876 We also want to state that it appears to us that Alternative 3 would have fewer environmental impacts than the other action alternatives. Alternative 3 would have the shortest alignment (121.6 miles) with the fewest stream and lake crossings (12), fewest acres of wetlands within 500 feet of the alignment (62.3 acres), and least amount of construction ground disturbance (206 acres). Alternative 4 would have the longest transmission line (139.6 miles) with greatest number of stream and lake crossings (19), greatest potential wetland impact (76.4 acres), and greatest ground disturbance (240 acres), although Alternative 4 would reduce impacts to farm operations. Alternative 2 would appear have impacts between those of Alternatives 3 and 4, with 129.9 miles transmission line length, 14 stream and lake crossings, 76.4 acres of potential wetlands impacts, and 214 acres of ground disturbance.

Comment 877 We recognize that there are many considerations and trade-offs involved in evaluating the transmission line alternatives, but we want to emphasize our interest that minimization of environmental impacts be considered as an important criterion in the decision making process. We support reductions in soil, water quality, wetlands, fisheries and wildlife impacts when finalizing alignment alternatives and evaluating the many project trade-offs.

Comment 878 We also believe that the FEIS and Record of Decision (ROD) should clearly explain the process and underlying rationale for the selection of the Preferred Alternative, and the environmentally preferred alternative should be identified in the ROD [40 CFR 1505.2(b)].

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Response 876: Note that some of the values in the comparison tables have changed since the Draft EIS, primarily due to the incorporation of new information on wetlands in Teton County. While some of the numerical values in comparison tables suggest that Alternative 3 may have fewer impacts to natural resources, a crude comparison of these numbers is not sufficient by itself to determine the lowest impact alternative. Numerical values for crossings of streams, lakes, and wetlands indicate the potential for impacts, but because surface waters and wetlands would be spanned or otherwise avoided under all alternatives (except for one angle structure in Black Horse Lake under Alternative 2), most potential impacts of surface water and wetland crossings would be avoided. Thus, after the application of this mitigating measure, there is little or no difference between alternatives with respect to the environmental impacts on surface water and wetland crossings. Similarly, because potential impacts to surface water quality due to construction disturbance would be minimized through mitigation measures, impacts would be minor under all action alternatives, in spite of the differences in land areas disturbed. Additionally, not all of the potential environmental impacts of this project are easily correlated with numerical measures. For example, Alternative 4 would reduce potential impacts to birds by avoiding Benton Lake National Wildlife Refuge, but the tables do not include a numerical indicator of this difference between the alternatives. Finally, because of the preponderance of agricultural land uses in the region and the long-term nature of impacts to farming practices, the agencies must give significant weight to impacts to farming practices when comparing the overall impacts of the alternatives.

Response 877: See the response to comment 875.

Comment 879 We appreciate the listing of the MATL environmental protection measures in Table 2.3-4, and the MDEQ environmental specifications included in Appendix F. The Appendix F environmental specifications protection measures appear to be particularly detailed and comprehensive. We support utilization of these environmental specifications and environmental protection measures to avoid or reduce the intensity and duration of impacts to the environment. We encourage use of the most comprehensive set of environmental protection measures using the most protective measures from both MATL's and MDEQ's lists.

Comment 880 We also believe that if there is likely to be any increase in pollutant delivery (e.g., sediment) to water quality impaired waters listed by the State of Montana under Section 303(d) of the Clean Water Act as a result of construction and/or operation and maintenance of the transmission line that watershed restoration activities should also be included in the project to offset sediment delivery from transmission line and access road construction. This is needed to assure that no further degradation occurs to the several 303(d) listed streams along the project alignments (i.e., Old Maids Coulee -an intermittent stream, Pondera Coulee, Cut Bank Creek, Marias River, Teton River, Lake Creek, the Missouri River, and Benton Lake). For example, we recommend stabilization of existing eroding banks; improving/installing BMPs on additional existing roads, perhaps in cooperation with local governments, to reduce existing road sediment sources. Unless existing sediment sources are reduced, we believe there will be potential to further degrade 303(d) listed streams by transmission line and road construction.

Comment 881 We also encourage the DOE and MDEQ Major Facility Siting Act staff to contact MDEQ's TMDL Program staff to assure that the MDEQ Watershed Protection and TMDL staff consider the proposed project to be consistent with MDEQ's development TMDLs and Water Quality Plans for the applicable TMDL Planning Areas (contact Robert Ray of the MDEQ in Helena at 444-5319).

Comment 882 The DEIS states that there could be alterations to wetland hydrology, wetland plant communities and inadvertent filling of wetlands or sedimentation of wetlands, although no direct filling of wetlands is intended. We recommend that there be a strict prohibition of placement of transmission line pole structures in wetlands, rather than just avoiding placement in wetlands "wherever possible," and that a wetland buffer zone be used to avoid even inadvertent construction impacts to wetlands (e.g., 50 foot wetland buffer zone). We also recommend that wetlands be flagged on the ground to facilitate contractor avoidance and inadvertent wetland impacts. If any wetlands are to be impacted the extent of impacts should be more clearly estimated and disclosed. The final EIS should also more clearly identify and disclose probable wetland impacts, as well as the mitigation activities that would compensate for unavoidable impacts to wetlands.

Comment 883 In addition, we recommend that the FEIS include maps that identify locations of important migration corridors of birds and along with identified potential collision hazard areas. This will provide the public and the decision maker with a clear understanding of the locations where effects to avian species are likely to be the greatest; assist in selecting alignments that avoid avian flyways; and help focus identification of the mitigation measures needed to eliminate or reduce avian effects.

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Response 878: Consistent with the requirements of CEQ's NEPA regulations, the final EIS identifies the agencies' preferred alternatives, and the agencies' Records of Decision will identify the environmentally preferable alternative and present the agencies' decisions and the basis for those decisions.

Response 879: If DEQ decides to issue a certificate for the proposed Project, all of the environmental protection measures identified in MATL's application would be incorporated into the DEQ certificate as requirements. Appendix F is a draft of the additional environmental specifications that DEQ could include as conditions.

Response 880: As stated in Section 3.5.3, the implementation of a storm water pollution prevention plan, avoidance of activities in flowing or standing water, and other measures to reduce sediment delivery to surface waters would effectively reduce short- and long-term risk of sedimentation from transmission line and access road construction to a minor adverse impact.

Response 881: The DEQ Watershed Protection staff and TMDL staff are aware of the proposed project.

Response 882: The commenter addressed this topic in greater detail in comments 896 to 904. See the responses to those comments and Vegetation, Wetland and Weed Issues in the Consolidated Responses section.

Response 883: See the discussion of Avian and Wildlife Issues in the Consolidated Responses section.

Comment 884 Finally, the DEIS does not provide much information about the construction of the transmission line and new substation in Alberta, Canada or the proposed route of the Canadian transmission line. We recommend that the FEIS identify the agency responsible for construction of the transmission line in Canada, and a contact person with that agency, and provide a discussion of the applicability of Executive Order 12114 *Environmental Effects Abroad of Major Federal Actions* and *CEQ's Guidance on NEPA Analyses for Transboundary Effects, July 1, 1997* in regard to the proposed MATL transmission line (http://www.nepa.gov/nepa/regs/transguide.html). We believe additional information about project implementation in Canada and any significant environmental effects that may occur as a result should be provided in the FEIS.

Comment 885 The EPA's further discussion and more detailed questions, comments, and concerns regarding the analysis, documentation, or potential environmental impacts of the Montana Alberta Tie Ltd. International Transmission Line DEIS are included in the enclosure with this letter. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). A copy of EPA's rating criteria is attached. The EPA believes additional information is needed to fully assess and mitigate all potential impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our comments and concerns please contact Mr. Steve Potts of my staff in Helena at (406) 457-5022 or in Missoula at 406-329-3313, or via e-mail at potts.stephen@epa.gov . Thank you very much for your consideration.

Sincerely,

John F. Wardell,
Director
Montana Office

Enclosures
cc: w/ enclosures
Larry Svoboda/Julia Johnson, 8EPA-N, Denver
Robert Ray/Mark Kelley, MDEQ, Helena
Carol M. Borgstrom, DOE, Washington DC

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Response 884: In accordance with Executive Order 12114, the EIS does not assess impacts occurring in a foreign nation unless that foreign nation is not otherwise involved in the action. The portions discussing the Canadian part of the project were included for information only.

Response 885: The comment and rating have been noted.

EPA COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE MONTANA ALBERTA TIE (MATL) 230-KILOVOLT TRANSMISSION LINE

Brief Project Overview

Comment 886 The U.S. Dept. of Energy (DOE), Office of Electricity Delivery and Energy Reliability, and Montana Dept.of Environmental Quality prepared this EIS to evaluate impacts of a proposal to construct the Montana Alberta Tie Ltd. (MATL) 230-kilovolt (kV) electric transmission line across the U.S. – Canada border in northcentral Montana. Originally DOE and MDEQ prepared an Environmental Assessment (EA) to evaluate this project which would require granting a Presidential Permit from DOE and a Major Facility Siting Act (MFSA) certificate of compliance from MDEQ. However, based on comments received on the EA relating to land use and potential effects on farming, it was determined that an EIS should be prepared.

The proposed project is an international 240/230-kV alternating current merchant (private) transmission line that would originate at an existing NorthWestern Energy (NWE) 230-kV switch yard near Rainbow Dam at Great Falls, Montana, and extend north to a new substation to be constructed northeast of Lethbridge, Alberta, crossing the U.S.-Canada international border north of Cut Bank, Montana. The total length of transmission line would be 203 miles, with approximately 126 miles constructed inside the U.S. The transmission line would be owned by MATL, a private Canadian corporation owned by Tonbridge Power. The proposed line would be part of the Western Interconnection (western grid), and a phase shifting transformer would be installed at the substation near Lethbridge to control the direction of power flows on the line. The MATL application for certification described the following purpose and need:

> *The Project would be the United States' first power transmission interconnection with Alberta and is expected to facilitate development of additional sources of generation (e.g., windfarms both in northern Montana, and southern Alberta), and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the Project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.*

Comment 887 The line would directly connect Montana and Alberta's regional operating transmission systems, and would allow power to flow directly between these two systems where there is no current connection. The proposed transmission line would have the capacity to carry up to 300 MW north and 300 MW south for a total capacity of up to 600 MW. However, due to constraints on the current system where MATL would tie in at Great Falls, the full capacity of 300 MW to the south would not be realized unless additional upgrades are made.

The proposed new transmission line could support a modest increase of new electricity generators, such as wind, in the study area by connecting them to regional grids and thus

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Response 886: Note that the first document published by DEQ and DOE for the MATL project (in March 2007) was a DEQ Draft EIS under the Montana Environmental Policy Act and a DOE Draft EA under NEPA. The second document, published in February 2008, was a supplement to the DEQ Draft EIS and a DOE Draft EIS. See page 1-1 of the EIS.

Response 887: There may be non-firm space available to prospective shippers south of Great Falls without additional upgrades. If the permitted and queued generation plants are not all constructed in the Great Falls area, non-firm space may be available south or west out of Great Falls. If all the planned and permitted generation in the Great Falls area and north of Great Falls was constructed and prospective shippers sought firm transmission rights, existing lines might have to be upgraded or additional lines might be required. Also see the discussion of Line Capacity Issues in the Consolidated Responses section.

potentially to electricity markets. A connection could provide access to markets for new wind generation facilities in the vicinity of the proposed transmission line and improve transmission access to markets seeking new energy resources. Additional transmission capacity is needed for the viability of new energy generation enterprises, and added capacity from this proposed transmission line could support a modest increase in new power generation in Montana, including wind energy. The region of Montana to be crossed by the proposed transmission line has a high potential for development of wind resources.

The proposed tie line between Montana and Alberta, may also result in benefits to transmission system operators whose service areas include Montana and to utilities that provide transmission service within the state. A modified transmission system could provide more options for power routing within Montana, increase energy transactions between Montana and Alberta, and allow for easier balancing of energy surpluses and shortages within and between balancing authority areas. Because tie lines are able to connect with adjacent electric systems, different generation resources can combine to provide a level of reliability that one jurisdiction could not otherwise afford if that jurisdiction had to cover the same resources independently. The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NorthWestern Energy, to obtain regulating reserves for its transmission system control area.

Comment 888

Four alternatives have been evaluated including No Action (Alternative1). Alternative 2 is MATL's proposed project to construct and operate a 129.9 mile long, 230-kV merchant transmission line between Great Falls, Montana, and Lethbridge, Alberta. The proposed alignment would have an operational ROW width of 45 feet with an additional 30 feet on either side to create a 105-foot safety zone. The line would extend from the expanded 230-kV Great Falls switch yard north of Great Falls to a proposed new substation south of Cut Bank, and then north to the Montana-Canada border at the western edge of the Red Creek Oil Field. Monopole structures would be used on 53 miles of the line where it would cross cropland and Conservation Reserve Program (CRP) land diagonally. H-frame structures would be used for the remainder of this alternative. Costs are estimated to be $40.6 million with mitigation.

Alternative 3 is a modified MATL alignment B proposal for a 121.6 mile transmission line that would be similar to Alternative 2 in width of the ROW, types of access roads, and other features., but the alignment would generally parallel an existing 115-kV transmission line along the entire route from the Great Falls switch yard to a substation near Cut Bank and use only H-frame structures. Alternative 3 was developed by MATL in response to a single siting criterion under MFSA that gives consideration to paralleling existing utility corridors (Circular MFSA-2). This alternative alignment was not intended to address potential land use issues or maintenance issues but is the shortest and potentially the least costly alternative under consideration. Costs are estimated to be $36.3 million with mitigation.

Alternative 4 was developed by the DEQ to address public concerns regarding line interference with farming activities and close proximity to residences. Alternative 4 would be 139.6 miles long and would be similar to Alternative 2 in that width of the ROW and other features, but would incorporate a higher degree of environmental protection than either

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Response 888: While it is correct that NorthWestern Energy would have an opportunity to obtain regulating reserves through the MATL line, there is no guarantee that it would use the line for this purpose. NorthWestern recently announced plans to construct a gas-fired generation plant near Anaconda to help satisfy its need for regulating reserves.

Alternative 2 or 3 since it would employ DEQ's draft Environmental Specifications. The Alternative 4 alignment would use portions of the Alternative 2 alignment from north of Conrad to the Montana-Alberta border. In other areas it would maximize the use of range and pasture land, where available. Where cultivated land would be crossed, it would generally be located along field or strip boundaries. Alternative 4 would require the use of monopole structures on all 88.9 miles of cropland and CRP land, not just where cropland and CRP land are crossed on the diagonal as in Alternative 2. Although Alternative 4 is analyzed as a whole, the agencies could select some or all parts of this alternative or other realignments. Costs are estimated to be $44.9 million with mitigation . MATL has stated that if Alternative 4 is selected, the project would be unlikely to be built since it would have difficulties obtaining adequate financing for the project due to additional costs and delays. Comment 889

Comments:

1. a Thank you for providing clear maps and aerial photos showing the various transmission line alignment options, (Figures 2.3-1 to 2.7-3). We also appreciate the inclusion of Table 2.3-4 showing MATL's proposed environmental protection measures (page 2-20), and Appendix F showing MDEQ's revised environmental specifications, as well as Table S-2 providing an alternatives matrix that compares resource impacts of the alternatives (pages S-26 to S-44). Comment 890

   b The Appendix F environmental specifications protection measures are detailed and comprehensive. We support utilization of these environmental specifications and environmental protection measures to avoid or reduce the intensity and duration of impacts to the environment. We encourage use of the most comprehensive set of environmental protection measures using the most protective measures from both MATL's and MDEQ's lists.

   c These maps, photos, and tables facilitate improved project understanding, help define issues, and assist in evaluation of alternatives providing a clearer basis of choice among options for the decisionmaker and the public in accordance with the goals of NEPA.

2. The EPA does not object to the proposed construction and operation of the MATL 230-kV transmission line from Great Falls, Montana into Alberta, Canada. Although, we recommend that the many environmental, social and economic tradeoffs may be better balanced and optimized with creation of a new modified preferred alternative that would use the better features from the existing action alternatives. We recommend the DOE and MDEQ consider construction of a new modified alternative that would better optimize the many environmental, social and economic trade-offs for this project (i.e., trade-offs in impacts to farm operations and residences, soil erosion during construction, water quality and wetland impacts, impacts to birds and wildlife habitat, costs, etc.). Comment 891 Comment 892

   The intent should be to address project purpose and need and the significant issues while minimizing adverse environmental impacts. Additional alternatives evaluation in the FEIS may also better explain to the public the many trade-offs involved in making Comment 893

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Response 889: Comments noted.

Response 890: Note that Appendix F has been revised to include additional environmental protection measures that DEQ could require.

Response 891 to 893: It is the opinion of the agencies that a full spectrum of reasonable alternatives was considered, including Alternative 4, which attempted to accommodate both the transmission line and existing land uses. Also see the response to comment 875.

transmission line decisions. This may also lead to improved public acceptance of decisions. In general desirable features we consider worthy of including in a new modified preferred alternative include:

- minimize soil disturbance and soil erosion by selecting alignments on less erosive soils and that reduce the extent of ground disturbance as much as possible;
- use monopoles rather than H-frame structures wherever possible to reduce soil disturbance and impacts to farm operations;
- incorporate appropriate construction sediment and erosion control methods and BMPs, as well as weed prevention and control measures during construction;
- minimize new access roads and new road construction, and locate any new roads that may be needed where they have minimal impacts, away from rivers, streams and wetlands;
- minimize stream and lake crossings, and disturbances of wetlands and riparian areas;
- minimize disturbances to sensitive wildlife habitat, and use appropriate mitigation measures to reduce wildlife impacts, particularly transmission line mortality to birds;
- minimize adverse impacts to farm operations and residences;
- minimize fragmentation of open landscapes from a scenic standpoint, and use topographical features to help screen the transmission poles as much as possible;
- consider costs of construction and operation.

Comment 894 We note of course that the MDEQ and DOE will need to evaluate and analyze the impacts of any new modified alternative, and display those impacts in the FEIS.

Comment 895 We also want to state that Alternative 3 appears to have the shortest transmission line alignment (121.6 miles) with the fewest stream and lake crossings (12), fewest acres of wetlands within the 500 foot alignment (62.3 acres), and least amount of construction ground disturbance (206 acres); while Alternative 4 has the longest transmission line (139.6 miles) with greatest number of stream and lake crossings (19), greatest potential wetland impact (76.4 acres), and greatest ground disturbance (240 acres), although Alternative 4 would reduce impacts to farm operations. Alternative 2 would be 129.9 miles long with 14 stream and lake crossings (Table 3.5-1, page 3-63), and 76.4 acres of potential wetlands impacts, and 214 acres of ground disturbance (page 3-90). It appears to us that Alternative 3 would have fewer environmental impacts than the other action alternatives.

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Response 894: Alternatives 2, 3, and 4 together with local routing options bracket the range of possible agency actions. Portions of these alternatives may be combined in the agencies' decisions. Since the publication of the Draft EIS, MATL has revised its application to include additional provisions to reduce some potential impacts. Also, MATL and DEQ worked with local land owners to modify some local routing options to reduce potential adverse effects on farming activities. The Final EIS presents the impacts of these revisions to the proposal and the modified local routing options.

Response 895: See the response to comment 876. Alternative 3 crosses more land diagonally than any other alternative alignment, so it would have the greatest potential for interference with farming activities. Also, because of its location adjacent to NorthWestern's Great Falls to Cut Bank line, it could place two sets of structures near each other, which would further complicate farming operations.

Comment 896 We recognize that there are many considerations and trade-offs involved in evaluating the transmission line alternatives, but we want to emphasize our interest in seeing that minimization of environmental impacts is considered to be an important criterion in the decision making process. We encourage efforts to support reductions in soil, water, wetlands, fisheries and wildlife impacts of the alternative alignments when evaluating the many project trade-offs.

Comment 897 We also believe that the FEIS and Record of Decision (ROD) should clearly explain the process and underlying rationale for the selection of the Preferred Alternative, and the environmentally preferred alternative should be identified in the ROD [40 CFR 1505.2(b)].

3. Comment 898 We are pleased that the DEIS states that MATL anticipates only minimum development of new access roads to construct, operate, and maintain the proposed transmission line (page 2-15). Construction of access roads is an important aspect of the project, since road construction and road operation and maintenance can result in adverse effects to water quality and other resources. Sediment from roads, particularly during road construction and reconstruction, and from poorly maintained roads with inadequate road drainage, is often a major cause of adverse water quality impacts, particularly where roads are near streams and there are many stream crossings.

Comment 899 It will be important for MATL, MDEQ and DOE to minimize new road construction, as well as to properly plan and design access roads, and to properly maintain roads and utilize adequate sediment and erosion control BMPs during road construction to minimize erosion and reduce sediment production and transport from roads.

Comment 900 Table 2.3-2 (page 2-13) estimates 3, 5, and 7 miles of new access road construction with Alternatives 2, 3 and 4, respectively. We did not see clear disclosure of the number of the number of road stream crossings associated with the proposed new access roads. The number of new road stream crossings for new access roads should be disclosed for each alternative in the FEIS. We also suggest that MATL, DOE and MDEQ review and consider our general recommendations regarding road construction in regard to new access roads, which are:

* minimize road construction and reduce road density as much as possible to reduce potential adverse effects to watersheds;

* locate roads away from streams and riparian areas as much as possible;

* locate roads away from steep slopes or erosive soils;

* minimize the number of road stream crossings;

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Response 896 and 897: Comments noted.

Responses 898 to 901: Only minimum development of new access roads is anticipated for any of the alternative alignments. Few graded surface access roads are planned or anticipated, and no new culverts, bridges, or other constructed stream crossings are expected to be needed. The majority of the right-of-way for the alternative transmission line alignments can be easily accessed from public roads, existing two track roads, and farm fields allowing truck and equipment travel. The study area is relatively flat, and most construction equipment for a line of this size can move cross country on side slopes of up to about 5 percent.

MFSA rules define a road as "… a way or course that is constructed or formed by substantial recontouring of land, clearing, or other action designed to be permanent or intended to permit passage by most four-wheeled vehicles for a significant period of time." MATL's application identifies several areas where road construction could be necessary. Specifically, the application identifies sites north and south of the proposed transmission line's crossings of the Teton and Marias rivers as places where grading and recontouring might be required to provide access to construct the reinforced structures needed to span these valleys. (All alternative alignments would cross both of these rivers.) Prior to construction these areas would be reviewed in the field to assure that there would be no unnecessary disturbance. There are other areas where there would be cross country travel with no road blading.

Sites of structures and roads would be chosen to avoid surface streams and 100-year floodplains. Areas judged to have significant constraints on effective reclamation would also be avoided to the extent possible.

* stabilize cut and fill slopes;

* provide for adequate road drainage and control of surface erosion with measures such as adequate numbers of waterbars, maintaining crowns on roads, adequate numbers of rolling dips and ditch relief culverts to promote drainage off roads avoid drainage or along roads and avoid interception and routing sediment to streams;

* consider road effects on stream structure and seasonal and fish spawning habitats;

* allow for adequate large woody debris recruitment to streams and riparian buffers near streams;

* properly size culverts to handle flood events, pass bedload and woody debris, and reduce potential for washout;

* replace undersized culverts and adjust culverts which are not properly aligned or which present fish passage problems and/or serve as barriers to fish migration;

* use bridges or open bottom culverts that simulate stream grade and substrate and that provide adequate capacity for flood flows, bedload and woody debris where needed to minimize adverse fisheries effects of road stream crossings.

Comment 901

We also encourage conduct of inspections and evaluations to identify conditions on roads that may cause or contribute to sediment delivery and stream impairment, and to correct road conditions impacting streams. It is important that road maintenance (e.g., blading) be focused on reducing road surface erosion and sediment delivery from roads to area streams. Grading (blading) of unpaved roads in a manner that contributes to road erosion and sediment transport to streams and wetlands should be avoided. Practices of expediently sidecasting graded material over the shoulder and widening shoulders and snow plowing can have adverse effects upon streams, wetlands, and riparian areas that are adjacent to roads. Road use during spring breakup conditions should also be avoided to limit runoff created road ruts during late winter thaws that increase road erosion (i.e., ruts channel road runoff along roads).

Comment 902

We also recommend that MATL and its road contractors and the agencies review road design and maintenance training videos available from the Forest Service San Dimas Technology and Development Center for use by road contractors (e.g., "Forest Roads and the Environment"-an overview of how maintenance can affect watershed condition and fish habitat; "Reading the Traveled Way" -how road conditions create problems and how to identify effective treatments; "Reading Beyond the Traveled Way"-explains considerations of roads vs. natural landscape functions and how to design maintenance to minimize road impacts; "Smoothing and Reshaping the Traveled Way"-step by step process for smoothing and reshaping a road while maintaining crowns and other road slopes; and "Maintaining the Ditch and Surface Cross Drains"-instructions for constructing and maintaining ditches, culverts and surface cross drains;

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Additionally, DEQ's draft environmental specifications (Appendix F) would require (if adopted) that roads be designed to prevent channeling of runoff. Areas of new road construction would be reviewed and inspected in the field prior to construction to assure that there would be no unnecessary disturbance. State inspections would also take place during construction of new roads. Any construction on the bed and banks of a perennial stream would require state inspection.

Following construction, MATL would retain some key access roads to maintain access to the right-of-way for routine operations and maintenance activities, but most access roads would be restored to pre-existing conditions. Reclamation of temporary roads built for use during project construction would be done in coordination with landowners and appropriate agencies. Long-term road maintenance would be minimal.

Response 902: MATL was provided a copy of your letter so that company personnel might see your suggestions.

http://www.fs.fed.us/eng/techdev/sdtdc.htm , contact Greg Napper, at 909-599-1267 x 290).

4. Comment 903 As you know, there can be public health concerns regarding electric fields created by a high-voltage transmission lines, since electromagnetic fields (EMF) field effects can include induced currents, steady-state current shocks, spark discharge shocks, and in some cases field perception and neurobehavioral responses. We appreciate the analysis and discussion regarding potential health and environmental effects associated with electromagnetic fields induced by the transmission line (Section 3.4). We are pleased that this DEIS analysis predicts that the level of electromagnetic fields will be below the standard and within the biologically based recommendations (page 3-50).

5. Comment 904 Thank you for providing Figure 3.5-1 showing watersheds intersecting the study area (page 3-58), and Figure 3.5-2 (page 3-60) showing water quality impaired streams that may be crossed by the transmission line (i.e., Old Maids Coulee -an intermittent stream, Pondera Coulee, Cut Bank Creek, Marias River, Teton River, Lake Creek, the Missouri River, and Benton Lake). A Total Maximum Daily Load (TMDL) and Water Quality Plan will need to be prepared for all impaired streams listed by the State of Montana under Section 303(d) of the Clean Water Act to promote water quality restoration. It will be important that the proposed MATL transmission line project be consistent with the MDEQ's preparation of TMDLs and Water Quality Plans for impaired waters.

Consistency with a TMDL that has not yet been completed means that any additional degradation of the impaired water (i.e., pollutant increase) should be avoided and if pollutants may be generated that would enter impaired waters during project activities (e.g., sediment), mitigation or restoration activities should also be included in the project to reduce pollutant sources to offset or compensate for pollutants generated during project activities. Recognizing uncertainties and desiring a margin of safety, such compensation should more than offset pollutants generated, resulting in overall reductions in pollution. Watershed restoration activities that compensate for pollutant production during management activities in watersheds of 303(d) listed streams should be included in such projects, and restoration activities should be implemented within a reasonable period of time in relation to pollutant producing activities (e.g., within 5 years).

The aforementioned MATL environmental protection measures and MDEQ environmental specifications, including preparation of an Erosion Control Plan (page 2-20) and Stormwater Pollution Prevention Plan (SWPPP, page 2-22) appear to address the need to use adequate BMPs and erosion and sediment control measures during and following construction. The State contact for construction storm water permitting activities is Brian Heckenberger of the Montana DEQ at 406-444-5310. These mitigation activities should reduce or minimize erosion and sediment production and transport during construction, however, even with use of BMPs it is likely that some additional pollutant (sediment) delivery to 303(d) listed streams may still occur.

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Response 903: Comment noted.

Response 904: Because sites of structures and roads would be chosen to avoid surface streams and because Best Management Practices would be used to minimize construction site erosion and sedimentation, impacts to surface streams are expected to be negligible. Erosion Control Plans and Stormwater Pollution Prevention Plans would be developed and implemented, as recommended. The DEQ Watershed Protection staff and TMDL staff are aware of the proposed project. Additional measures aimed at reducing sediment from other sources are voluntary actions MATL may undertake if these measures cannot be required in another water quality permit. At this time it appears that the line could be constructed without any specific permits. Also see Legal and Regulatory Issues in the Consolidated Responses section.

We believe the FEIS should identify and discuss watershed restoration activities to control other existing sediment sources in order to provide compensation for the sediment production and transport associated with transmission line and road construction activities for 303(d) listed streams (e.g., stabilize existing eroding banks; improve/install BMPs on additional existing roads perhaps in cooperation with local governments to reduce existing road sediment sources). Activities to control and reduce existing sediment sources are needed to provide full assurance that no further degradation occurs to 303(d) listed streams during transmission line and road construction, since a small amount of sediment transport is still likely to occur even with use of BMPs during transmission line and road construction. Unless existing sediment sources are reduced, 303(d) listed streams will be further degraded by transmission line and road construction.

We also encourage the DOE and MDEQ Major Facility Siting Act staff to contact MDEQ's TMDL Program staff to assure that the MDEQ Watershed Protection and TMDL staff consider the proposed project to be consistent with MDEQ's development TMDLs and Water Quality Plans for the applicable TMDL Planning Areas (contact Robert Ray of the MDEQ in Helena at 444-5319).

6. Comment 905

EPA considers the protection, improvement, and restoration of riparian areas and wetlands to be a high priority. Wetlands and riparian areas increase landscape and species diversity, support many species of western wildlife, and are critical to the protection of water quality and designated beneficial water uses. Potential impacts on riparian areas and wetlands include: water quality, habitat for aquatic and terrestrial life, flood storage, ground water recharge and discharge, sources of primary production, and recreation and aesthetics.

Executive Order 11990 requires that Federal Agencies *"take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities..."* and agencies are further directed to *"avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use..."*. In addition national wetlands policy has established an interim goal of **No Overall Net Loss of the Nation's remaining wetlands**, and a long-term goal of increasing quantity and quality of the Nation's wetlands resource base.

We are pleased that impacts to wetlands, riparian areas and floodplains are discussed (Section 3.6), and that wherever possible placement of new structures constructed and associated construction activities would occur outside wetland areas (pages 2-23, 3-8). Although we would rather see a strict prohibition on placing new structures and access roads in wetland areas, rather than just doing this "wherever possible." We would like to see wetland and riparian areas fully spanned to avoid any direct impacts. We also support the MDEQ environmental specification to delineate wetlands along the selected alignment (page 3-81), and further recommend that wetland areas along the ROW be

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Response 905 to 913: The agencies agree that the protection, improvement, and restoration of riparian areas and wetlands are high priorities.

MATL has stated that its goal is to avoid impacts to wetlands by avoiding placement of any structure within a jurisdictional wetland. MATL would use construction buffers to eliminate any and all, including inadvertent, impacts to wetlands or other waters of the United States. It is currently expected that the project could be completed without any direct disturbances to streams and wetlands. Thus, no compensatory mitigation would be needed. If, however, any disturbance were found to be unavoidable, the applicant would be required to comply with all applicable regulatory requirements. If, during construction, a site specific wetland impact issue arises, the U.S. Army Corps of Engineers would be contacted to assure compliance with Section 404 of the Clean Water Act. Additional mitigation measures to help minimize the potential unavoidable construction-related impacts to wetlands would then be required for MATL and their construction contractors under the U.S. Army Corps of Engineers' Nationwide #12 Permit (Utilities Line Activities).

If work in streams or wetlands is necessary, the measures listed in sections 2.11.5, 2.11.6, and 2.11.9 of the revised draft Environmental Specifications in Appendix F would become conditions to the Certificate of Compliance if it is approved. In addition, if DOE grants the Presidential permit, it may place any conditions in the permit that it deems necessary and appropriate to protect the public interest. DOE has typically placed conditions in Presidential permits that require the permittee to employ the mitigation measures identified in the NEPA document and that formed the basis of any impact analysis.

Under MFSA rules applicants are required to identify wetlands greater than 20 acres in size (Circular MFSA-2, Section 3.4(1)(u)). This size was selected to recognize that smaller wetlands can usually be spanned. Under MFSA no other local permits are required after a certificate has been issued. Therefore, DEQ's Environmental Specifications would require on-site inspections of perennial stream crossings prior to the start of construction. If no in-stream activities would be required, then no 310 permit is necessary.

The numerical values in the EIS for areas of wetlands crossed include all wetlands within a 500-ft-wide corridor. These numbers overstate the potential impact because they include areas that would not be included in the narrower 105-foot right-of-way in which the project would be built. Although Alternative 4 would cross the largest area of wetlands, it would cross the least area of wetlands associated with lakes.

The very few sites with riparian vegetation in the study area are located low in drainages adjacent to wetlands and streams. Transmission line structures are usually located at high points or in uplands making it possible to span wetlands and riparian areas. If a wetland could not be spanned by the transmission line, compensation or other mitigation would be required. It is, however, unlikely that any wetlands or riparian areas could not be spanned, except for one angle structure in Black Horse Lake under Alternative 2.

The draft Environmental Specifications (Appendix F) have been revised; they would (if adopted), require delineation of wetlands within 250 feet of the approved location, prohibit access through wetlands, and require that all wetlands be spanned. Additionally, the agencies are considering requiring a 50-foot buffer zone around wetlands within which no disturbance would be allowed, and the draft Environmental Specifications have been revised to include this possible requirement.

flagged on the ground to facilitate wetland avoidance and "inadvertent" impacts by the contractor during construction.

Comment 906 It will be important to obtain appropriate State, local and Federal permits and authorizations for conduct of construction work in or near streams and wetlands (e.g., Section 318 short term turbidity exceedance authorization, 310 or 124 permits, MPDES Stormwater permits, Corps of Engineers 404 permit, etc.). As you know discharges of fill material into wetlands and other waters of the United States are regulated by Section 404 of the Clean Water Act, 33 U.S.C. 1344, which is administered jointly by the U.S. Army Corps of Engineers and EPA. It is important that MATL and the DOE and MDEQ consult with the Corps of Engineers in regard to 404 permit requirements for construction activities in or near streams or wetlands, (e.g., contact Mr. Allan Steinle of Corps of Engineers Montana Office in Helena at 406-441-1375). The 404(b)(1) Guidelines (found at 40 CFR Part 230) provide the environmental criteria by which 404 permits are evaluated. See Corps of Engineers Montana Regulatory Office website for further information, https://www.nwo.usace.army.mil/html/od-rmt/mthome.htm .

The DEIS states that there could be alterations to wetland hydrology, wetland plant communities and filling of wetlands or sedimentation of wetlands (page 3-74), although no direct filling of wetlands is intended. The DEIS suggests that wetland impacts would be minor and of short duration (page 3-76). Presently the DEIS identifies wetland acreage within the 500 foot ROW, but the estimated acreage of wetlands to be filled or altered is not clearly identified. It is stated that construction activities adjacent to wetlands could inadvertently result in disturbance to wetlands.

Comment 907 We recommend that a wetland buffer zone be applied to avoid even inadvertent construction impacts to wetlands (e.g., 50 foot wetland buffer zone).

Comment 908 If construction buffer zones that avoid even inadvertent impacts to wetlands are not used the impacts to wetlands should be quantified as much as possible. The FEIS should either include a requirement for wetland buffers to achieve no impacts, or clearer identification and quantification of the "inadvertent" impacts to wetlands should be provided. We suggest that a table be provided in the FEIS showing the acreage of wetlands likely to be impacted by the project alternatives, along with a discussion of the associated wetland functions and values that may be impacted.

Comment 909 If it appears that wetland impacts are more significant, and particularly if there are significant wetland and/or river and stream dredge and fill impacts, we generally recommend that a 404(b)(1) analysis be included as an Appendix to the FEIS, since inclusion of a draft 404(b)(1) analysis helps assure that 404 permit requirements are properly integrated into the NEPA process in accordance with 40 CFR 1500.2(c).

Comment 910 Section 404 Dredge and Fill Permit rules/policies require that adverse impacts to aquatic resources be avoided and minimized as much as possible, and that unavoidable impacts to wetlands be compensated for. If there will be impacts to wetlands including "inadvertent filling" these impacts should be mitigated via wetlands restoration/creation/enhancement

to compensate for wetlands impacted by transmission line and/or road construction to assure that there will be no net loss of wetlands as a result of the proposed project. The goal of wetland mitigation should be to replace the functions and values of impacted wetlands in areas adjacent to or as close as possible to the area of wetlands loss. Wetland restoration is preferred to wetland creation or enhancement because restoration has a higher rate of success.

Comment 911 EPA/Corps policy has accepted acre-for-acre replacement of wetlands as a surrogate for replacement of functions and values when there is a lack of definitive information on functions and values, although adjustments may be necessary to reflect the expected degree of success of mitigation, and provide an adequate margin of safety to reflect anticipated success (i.e., greater than acre-for-acre replacement is suggested when impacted wetlands have high function & value and likelihood of replacement of functions is low). Traditional mitigation is often not successful in fully restoring wetland function, and 2:1 or higher mitigation ratios are sometimes required to mitigate wetlands impacts. Construction/enhancement of wetlands to compensate for impacted wetlands should occur in advance or concurrent with activities causing wetlands impacts to reduce temporal losses of wetland functions.

Comment 912 If a project has significant wetland impacts we also generally recommend that a Wetland Mitigation Plan be prepared to assure that adequate replacement of lost wetland functions and values occurs. This mitigation plan should include consideration of direct, indirect, and cumulative effects. It should contain a statement of goals, a monitoring plan, long-term management/protection objectives and a contingency plan (a commitment to conduct additional work if required to meet the goals of the plan). The mitigation plan should also include best management practices and mitigation measures that will manage stormwater runoff from roadways before it reaches wetlands, streams and other aquatic habitats. In general, wetlands, including mitigation wetlands, should not be used for treatment of stormwater. This Plan should be approved by the appropriate agencies before implementation of the proposed project.

Comment 913 The final EIS should more clearly identify and disclose probable wetland impacts, as well as the mitigation activities that would compensate for unavoidable impacts to wetlands. This information could be provided in the narrative of the EIS or in the 404(b)(1) analysis appended to the EIS. This may be most necessary for Alternative 4 that is stated to have the highest potential for wetland impacts (page 3-77).

7. Comment 914 As you know construction activities that involve soil disturbance create conditions favoring the spread of noxious weeds. We support use of noxious weed mitigation and control methods during transmission line construction, since many noxious weeds can out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. We are pleased that the MATL and MDEQ environmental measures include measure to limit and control weeds along the transmission line ROW, and that a MATL integrated weed control plan would be prepared, and that MATL would report annually on the condition and progress of weed

Responses 914 to 922: Within the right-of-way MATL would be responsible for controlling weeds due to the company's activities. The provisions of MATL's proposed integrated weed control program, which is mentioned in the comment, would be incorporated into the DEQ certificate. MATL's proposed weed control plan includes the suggested practice of requiring washing of vehicles and construction equipment before entering the right-of-way area to reduce the spread of noxious weeds.

The agencies have considered the recommendation for use of gates on access roads. However, much of the land that would be traversed by the proposed line is flat and unfenced. Adding a gate across a road where there is no fence would have little mitigation value. Where fences exist, MATL would be required to consult with the landowner and where requested by the landowner, all fences crossed by permanent access roads would be provided with a gate (Appendix F, Section 2.5.7). Where gates are not requested, the existing fence would be replaced to prevent unauthorized access (Appendix F, Section 2.5.4).

Spraying of target weed species would be done in coordination with the BLM, state weed coordinator, and county weed boards and groups (see Appendix C – MATL Noxious Weed Control Plan, and Appendix F – Revised draft DEQ Environmental Specifications). As noted in the comment, MATL would be required to use Montana licensed applicators. All use of herbicides, pesticides, or other toxicants would be required to be done in accordance with Federal label instructions and restrictions. Adherence to label requirements against using certain herbicides near surface waters should make it unnecessary to require a 50-foot buffer around streams and wetlands within which no spraying would be allowed.

The recommendations provided in the comments regarding picloram (Tordon), including application rate, number of applications per year, and restrictions on application around roadside drainage areas leading to intermittent and perennial streams are noted.

Also see Vegetation, Wetland and Weed Issues in the Consolidated Responses section.

control efforts (page 3-91).

Comment 915 We note that while the MDEQ measures generally appear to be more detailed and comprehensive than the MATL measures (Table 2.3-4), the MATL measures identify the need to wash vehicles and construction equipment before entering the transmission line ROW to reduce spread of weed seeds. We support this measure did not see it in the MDEQ environmental specifications. We recommend careful review of the MATL measures in comparison to the MDEQ measure to assure that the most comprehensive and effective set of environmental protection measures are used.

Comment 916 Weed prevention is the most cost-effective way to manage and control weeds by avoiding new infestations and spread of weeds, and thus, avoiding the need for subsequent weed treatments (e.g., weed prevention practices such as minimizing ground disturbance, revegetating disturbed areas, use of weed free seed, cleaning vehicles and equipment, and other practices that prevent infestation and spread of weeds). Early recognition and control of new infestations avoids wider future use of herbicides and other control methods. We also support use of gates on access roads to discourage ATV/recreational vehicle travel on these roads, since such motorized uses disturb soil, create weed seedbeds, and disperse weed seeds.

Comment 917 We appreciate the recognition in the MDEQ environmental specifications of the need to use certified herbicide applicators, and to use herbicides in accordance with label specifications, and to be cautious in spraying near streams and wetlands with use of no spray buffer zones along streams and wetlands. Herbicide drift into streams and wetlands could adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species.

We recommend use of 50 feet no spray buffer zones adjacent to streams and wetlands, and mechanical weed removal or hand-pulling of weeds adjacent to aquatic areas. Hand-pulling can be effective for weeds that do not contain extensive root systems near surface waters. It may be helpful to add a list of those weed species which can be effectively hand-pulled (i.e. those without large tap roots and spreading rhizomatous root systems). The herbicide application technique of hand or manual wipe-on (especially applicable for contact systemic herbicides such as glyphosate) is an option to control individual weed plants up to the existing water level adjacent to streams or sensitive aquatic sites.

Herbicides should be applied at the lowest rate effective in meeting weed control objectives and according to guidelines for protecting public health and the environment. All efforts should be made to avoid movement or transport of herbicides into surface waters that could adversely affect public health, fisheries or other water uses. The Montana Water Quality Standards include a general narrative standard requiring surface waters to *be free from substances that create concentrations which are toxic or harmful to aquatic life.*

Comment 918 It is important that the water contamination concerns of herbicide usage be fully evaluated and mitigated. All efforts should be made to avoid movement or transport of herbicides into surface waters that could adversely affect fisheries or other water uses. Herbicides, pesticides, and other toxicants and chemicals must be used in a safe manner in accordance with Federal label instructions and restrictions that allow protection and maintenance of water quality standards and ecological integrity, and avoid public health and safety problems.

Comment 919 Herbicide applicators should be advised of the potential for runoff of herbicides at toxic concentrations into the streams. The applicators should take precautions during spraying (e.g., applying herbicide only after careful review of weather reports to ensure minimal likelihood of rainfall within 24 hours of spraying; special precautions adjacent to the stream to reduce runoff potential; etc.). It should be unequivocally stated that no herbicide spraying will occur in streams and wetlands or other aquatic areas (seeps, springs, etc.). Streams and wetlands in any area to be sprayed be identified and flagged on the ground to assure that herbicide applicators are aware of the location of wetlands, and thus, can avoid spraying in or near wetlands.

Comment 920 We are particularly concerned about potential use of more toxic and persistent herbicides such as picloram (Tordon), since they have higher potential for more serious stream and/or groundwater contamination. We recommend that roadside drainage areas leading to intermittent and perennial streams be flagged as no-spray zones and not sprayed with picloram based herbicides. We also recommend that picloram not be used at rates greater than 0.25 lbs/acre, and suggest that MATL and the agencies consider applications of persistent herbicides such as picloram only once per year.to reduce potential for accumulation in soil. Potential for persistant herbicides to accumulate in soil in harmful amounts are reduced if sites are treated only once per year (twice being the limit). Trade-offs between effective weed control and effects on soil productivity and leaching concerns may need to be considered. A second treatment application if needed should only occur after 30 days (or according to label directions).

Comment 921 For your information, Dow AgroSciences, the manufacturer of Tordon 22K, has recently developed supplemental labeling for Tordon 22K for areas west of the Mississippi River. They have directions for wick or carpet roller applications. Tordon 22K herbicide can be applied using wick or carpet roller equipment where drift presents a hazard to susceptible crops, surface waters, and other sensitive areas. One part Tordon 22K is mixed with 2 parts water to prepare a 33% solution. The wick method of application is more labor intensive but very effective at targeting particular noxious weeds adjacent to surface waters, wetlands, or protected plants.

Comment 922 Most picloram products, including Tordon 22K, are Restricted Use Pesticides (RUPs) requiring pesticide applicator certification to purchase and apply. It is important that herbicide applicators be certified throughout the duration of the project. If commercial applicators will be contracted for RUP applications, we recommend checking to make sure their MT commercial RUP license is current. Please contact Montana Dept. of

Agriculture at (406) 444-5400 for more information. Also, please note that registration for Access (which has picloram as an active ingredient) is cancelled.

For your information, the website for EPA information regarding pesticides and herbicides is http://www.epa.gov/pesticides/ . The National Pesticide Telecommunication Network (NPTN) website at http://nptn.orst.edu/tech.htm which operates under a cooperative agreement with EPA and Oregon State University and has a wealth of information on toxicity, mobility, and environmental fate on pesticides which may be helpful (phone number 800-858-7378).

8. Comment 923 As you know transmission lines can result in avian mortality particularly due to bird collisions with the transmission line. We are pleased that the DEIS states that areas with a higher likelihood of collisions, known flyways, would be avoided (Page 3-107). It would be of interest to identify in the FEIS the known avian flyways that will be avoided. We recommend that the FEIS include maps that identify locations of important migration corridors of birds and along with identified potential collision hazard areas. This will provide the public and the decision maker with a clear understanding of the locations where effects to avian species are likely to be the greatest, and assist in selecting alignments that avoid flyways, and help focus the identification and evaluation of mitigation measures needed to eliminate or reduce avian effects.

Comment 924 We are pleased that MATL would apply. *"Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006"* developed by the EEI, APLIC and the California Energy Commission (2006), during design and construction of overhead structures and the substation additions; and that avian collisions would be reduced as approved line marking devices would be installed, at intervals suggested by manufacturer's recommendations, on overhead ground wires within all stream, river and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, Teton River, east of the Benton Lake NWR boundary and within a ½ mile of the refuge boundary. Line marking devices would also be placed within a ¼ mile buffer on either side of streams, rivers, or wetlands.

In addition, the DEIS states that annual mortality surveys would be conducted to ensure that line marking devices are functioning properly. We recommend that the field surveys be conducted during the spring and fall migratory periods and the spring nesting period to locate birds which have been electrocuted or have struck transmission lines to aid in the process of identifying and modifying problem areas.

9. Comment 925 The DEIS indicates that the proposed action would result in an increase in activities that could adversely affect air quality during construction (short term), and during operation and maintenance of the transmission line (long term) (page 3-136). The DEIS does not report any air quality non-attainment areas along the alternative alignments, and states that Federal/State air quality Class I areas located within 100 miles of the project area include Scapegoat Wilderness (50 miles west), Bob Marshall Wilderness (50 miles west),Glacier National Park (40 miles west), and Gates of the Mountains Wilderness (50

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Response 923: See Avian and Wildlife Issues in the Consolidated Responses section. A map of flyways has been added to Section 4.9, but fine scale flyway maps for the area traversed by the proposed transmission line are not available.

Response 924: See Avian and Wildlife Issues in the Consolidated Responses section for additional discussion of measures to prevent avian collisions.

Response 925: Comment noted

miles southwest). The project area has meteorological conditions that provide for good dispersion of air pollutants.

Air quality impacts would result from use of equipment and vehicles during construction and during operation and maintenance (i.e., pollutant emissions of carbon monoxide, carbon dioxide, sulfuroxides, PM-2.5, nitrogen oxides, volatile organic hydrocarbons, aldehydes, and polycyclic aromatic hydrocarbons), and creation of fugitive dust and particulates during construction.

Comment 926 We are pleased that fugitive dust would be controlled through dust control measures such as water sprays, limiting the speed of construction equipment, and reseeding the disturbed areas at the end of the construction period, and that gaseous emissions would be limited through construction management and scheduling. In addition we recommend limiting diesel emissions by reduced idling and modern diesel engines and/or use of Ultra Low Sulfur Diesel in the construction equipment, and including rock crushing and other material production and processing that may be needed during construction of access roads in the efforts to minimize fugitive dust.

10. Comment 927 Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires federal agencies to make environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations (e.g. Native American) and low-income populations. We are pleased that the DEIS includes evaluation of environmental justice considerations for the proposed transmission line (page 3-176), concludes that no that no disproportionately high and adverse impacts would be expected for minority or low-income populations (page 3-181).

11. Comment 928 The DEIS states that wind farms have purchased all the power shipping capacity of the proposed transmission line (Table 4.1-1, page 4-2), but that because capacity rights are a commodity that may be resold or traded, the original wind farm purchasers may not be the power suppliers that use the line. Accordingly, the DOE does not consider wind farms that may be served by the proposed transmission line to be "connected actions as defined in 40 CFR 1508.25(a) (page 4-2). The DOE believes the proposed MATL line has an existence and utility independent from the wind farms, and impacts from potential wind farms are evaluated as cumulative impacts in accordance with 40 CFR 1508.7.

Comment 929 Table 4.1-2 (page 4-6) shows the potential reasonably foreseeable future power generation projects in the vicinity of the MATL line. These include several wind farms as well as the 250 MW Highwood Coal Fired Generating Station, and the 275 MW Great Falls Energy Partners Gas Fired Power Plant. We have concerns regarding the cumulative effects of the reasonably foreseeable future actions, particularly the cumulative effects of air pollutant emissions of new power plants and the effects of many new wind farms on avian species.

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Response 926: The agencies will consider the recommendation regarding the use of ultra-low sulfur diesel and reduced vehicle idling time. Rock crushing operations would have to comply with Montana air quality regulations.

Response 927: Comment noted.

Response 928 to 930: Cumulative impacts of reasonably foreseeable future actions, including those named in the comment are presented in sections 4.1 to 4.16. Your concerns about cumulative impacts of future power plant and wind farm development are noted. Note that future privately funded wind generation projects located on private land would not be subject to site-specific NEPA review. Also see Avian and Wildlife Issues in the Consolidated Responses section.

Comment 930 It will be important that additional site-specific NEPA analysis occur to evaluate and mitigate adverse effects for these future actions to the maximum extent possible. As noted above, we recommend that the FEIS include maps that identify locations of important migration corridors of birds and along with identified potential collision hazard areas, since this information may also assist in locating new wind farms away from avian flyways.

12. Comment 931 The DEIS states that the proposed transmission line would extend north in Alberta, Canada to a new substation to be constructed northeast of Lethbridge, Alberta (page 1-1). The proposed line would be part of the Western Interconnection, and a phase shifting transformer would be installed at the substation near Lethbridge to control the direction of power flows on the line. The DEIS does not provide much information about the 77 construction of the transmission line and new substation in Alberta, Canada or the proposed 77 mile route of the Canadian transmission line.

We recommend that the FEIS identify the agency responsible for construction of the transmission line in Canada, and a contact person with that agency, and provide a discussion of the applicability of Executive Order 12114 *Environmental Effects Abroad of Major Federal Actions* and *CEQ's Guidance on NEPA Analyses for Transboundary Effects, July 1, 1997* in regard to the proposed MATL transmission line (http://www.nepa.gov/nepa/regs/transguide.html). We recommend that additional information about project implementation in Canada and any significant environmental effects that may occur as a result should be provided in the FEIS.

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Response 931: See response to comment 884.

PART 3. LIST OF COMMENTERS

C = Conrad Public Hearing; CB = Cut Bank Public Hearing; GF = Great Falls Public Hearing

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50	Alan Anderson	Anderson	539
181	Arlene & Ray Anderson	Anderson	667, 668, 669, 670, 671,
49	Clinton Anderson	Anderson	538
5	Jim Anderson	Anderson	28, 605
134	Mary Anderson	Anderson	614
C	Ray Anderson	Anderson	490
202	Rep. Duane Ankney	Ankney	815
202	Sen. Keith Bales	Bales	818
37	Doug Banka	Banka	526, 579, 580, 581, 582
118	Brian Banons	Banons	568, 569
152	Aidan Banows	Banows	568, 569
154	Brian Banows	Banows	568, 569
151	Conagher Banows	Banows	568, 569
148	Dee Banows	Banows	568, 569
150	Shad Banows	Banows	568, 569
CB	Johnel H Barcus	Barcus	325, 326, 327, 533,
47	Dawn Barrett	Barrett	536
10	David Baumann	Bauman	36, 37, 38, 39, 40, 41, 42, 43, 44, 45,
202	Rep. Bill Beck	Beck	816
204	Fred And Pat Becker	Becker	820, 822
GF	Peggy Beltrone	Beltrone	209, 210, 211, 212, 213, 214,
194	Dan Bennett	Bennett	718, 719, 720
C	Chris Berg	Berg	419, 420, 421, 422, 423,
187	Vernon Berger	Berger	694, 695
2	MT FWP (Gary Bertellotti)	Bertellotti	12, 13, 14, 15, 16, 17, 18, 19,
CB	Dave Brownell Letter From Rick, Jeff, Valerie Billman	Billman	340
CB	Dave Brownell Read Letter From Rick Billman	Billman	339
70	Jeff Billman	Billman	548
68	Rick Billman (Billman's Inc)	Billman	547, 548

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67	Rick Billman, Jeff Billman, Valerie Vermulm	Billman	547
GF	Jerry Black	Black	254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 382, 383, 384, 385, 500, 501, 502, 503, 504, 505, 506, 566,
202	Sen. Jerry Black	Black	811
107	Ronald S. Block	Block	568, 569
204	Howard Bouma	Bouma	820
157	Bill Brandon	Brandon	568, 569
123	Deb Brandon	Brandon	610, 611
123	Deb Brandon	Brandon	612
180	Deb Brandon	Brandon	665
C	Rich Branning	Branning	485, 486, 487
GF	Everett Breding	Breding	303, 820
204	Sandra Broesder	Breosder	822
204	Donald Broesder	Broesder	821
204	Kaye Broesder	Broesder	822
204	Phil Broesder	Broesder	821
GF	Sandra Broesder	Broesder	224, 411, 411, 412, 412, 413, 413, 414, 414, 415, 415, 416, 416, 417, 417, 566, 391, 392, 393,
186	Shane Broesder	Broesder	691, 692, 693
3	Glacier Electric (Jasen Bronec)	Bronec	20, 21, 22, 23, 24, 25, 26,
204	Angela D. Brown	Brown	820
119	Dede Brown	Brown	600, 601
202	Sen. Roy Brown	Brown	812
CB	Dave Brownell	Brownell	328, 329, 330, 331, 332, 341, 342,
51	Stephanie Browning	Browning	540
202	Sen. John Bruggeman	Bruggeman	813
GF	Vanessa Buckland - Letter Read By Carol Jones	Buckland	301, 302
26	Vanessa Bucklin	Bucklin	102, 528
24	USFWS (Kathleen A Burchett)	Burchett	532
180	Alice Burchser	Burchser	666
88	Linda Burley	Burley	576, 577
86	Vincent Burley	Burley	568, 569

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79	Jamey Byrnes	Byrnes	566, 577
202	Rep. Tim Callahan	Callahan	810
174	Robert Carney	Carney	648, 649, 649, 650, 651, 652, 653, 654, 655, 656, 657,
12	Lorette Carter	Carter	53, 54, 55, 56, 141, 142, 143, 144, 68, 69, 70, 71,
CB	Becky Cavett	Cavett	362
GF	Joe Christians	Christians	133, 134, 135, 136, 318, 319, 320, 321, 322, 323, 324,
108	Ray Christians	Christians	568, 569
109	Shawn Christians	Christians	568, 569
6	Lew & Christy Clark	Clark	29
202	Rep. Edith Clark	Clark	811
144	Dave Colavito	Colavito	631, 632, 633
180	Krystina Z. Cole	Cole	
CB	Jackie Coolidge	Coolidge	350, 351, 352, 353, 354, 355, 568, 568, 569, 569,
C	Ted Crawford	Crawford	410
180	Mark A. Cron	Cron	666
7	Jim Cummings	Cummings	30
115	Kathy Cummings (Kmc Inc)	Cummings	594
33	Cheryl Curry	Curry	137, 138, 139, 140, 462, 462, 463, 463, 464, 464, 465, 466,
204	Cheryl Curry	Curry	822
202	Sen. Aubyn Curtis	Curtis	814
190	Steve Dahlman	Dahlman	707, 708, 709, 710, 711, 712, 713, 714,
78	John Dallum	Dallum	473, 562, 563, 564, 565,
GF	Steve Dalton	Dalton	282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292,
149	Christy Dennison	Dennison	568, 569
200	Terri Denzer, Allen Denzer, Darlene Denzer	Denzer	776, 777, 778, 779, 780, 781,
133	Michael Desrosier	Desrosier	613, 618
139	Joe Deftaffany	Detaffany	619, 620
92	USGS (James Devine)	Devine	588
202	Rep. Sue Dickenson	Dickenson	812

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C	Shawn Dolan	Dolan	436, 436, 437, 437, 438, 439, 440, 441, 441, 442, 442, 443, 443, 444, 445, 446, 446, 447, 447, 448, 449, 450, 451, 452, 453, 454, 455, 550, 454, 455, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559,
C	Brett Doney	Doney	402, 403, 404, 405, 406, 406, 407, 408, 408, 409,
183	Brett Doney	Doney	677, 678, 679, 680, 681, 682,
4	Noel Duram	Duram	27
116	Rev. Gerald Ebelt	Ebelt	595
48	Gary Ellergson	Ellergson	537
201	Janet Ellis (MT Audubon)	Ellis	782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 807, 808,
GF	Brad Elman	Elman	
169	US EPA	EPA	875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 923, 924, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 923, 924,
202	Sen. Jeff Essman	Essman	815
83	Pat Fetger	Fetger	477
204	J. Findlayson	Findlayson	821
79	Jim & Kit Finlayson	Finlayson	566
GF	Dan Flynn	Flynn	316, 317
202	Rep. Julie French	French	813
60	Jackie Galespe	Galespe	349
165	Garcia	Garcia	577
145	Bethann Garramon	Garramon	634, 635, 636, 637, 638
180	Renae Gates	Gates	666
202	Sen. Kelly Gebhardt	Gebhardt	816
165	Carle Gebhart	Gebhart	577
202	Sen. Kim Gillan	Gillan	817
CB	Roxy Gillespie	Gillespie	349

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177	Brianna Gillund	Gillund	568, 569, 568, 569, 568, 569
197	John Goodmundson	Goodmunson	758, 759, 760, 761, 762, 763, 764, 765,
18	Heather A Gottfried	Gottfried	78, 79, 80
204	Heather Gottfired	Gottfried	822
53	Jeff Gottlob	Gottlob	542
52	Tori Gottlob	Gottlob	541
39	Bob Guditis	Guditis	527
90	Mary Guse	Guse	586, 587
57	Colleen Gustafson (Triangle Land & Livestock)	Gustafson	334, 335, 336
CB	Dave Brownell Read Letter From Colleen Gustafson	Gustafson	335, 336
204	G. Gustafson	Gustafson	820
14	Greg Habel	Habel	652, 63, 64, 65, 66, 67
202	Sen. Ken Hanson	Hanson	818
GF	Ralph Harbush	Harbush	306, 307, 308
CB	Shannon Harrison	Harrison	389
180	Mary Ann Harwood	Harwood	666
105	Diane Hastings	Hastings	568, 569
21	Jack Hayne	Hayne	88, 89, 90, 91, 92, 93,
202	Rep. Ralph Heinert	Heknert	814
202	Rep. Gordon Hendrick	Hendrick	815
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79	Debbie Hicks	Hicks	566, 822
206	Stephanie Hilger (Mt Dot)	Hilger	825, 826
GF	Ray Hollandsworth	Hollandsworth	249, 250, 251, 252, 253, 400, 401, 820
208	Heather Holloway	Holoway	827
167	Brad Huffman	Huffman	642, 643, 644, 645, 646
202	Rep. Pat Ingraham	Ingraham	816
CB	Gary Iverson	Iverson	356, 357, 456, 457, 568, 569,
165	Alyssa Jackson	Jackson	577
180	Boyd Jackson	Jackson	666
46	David Jacobson	Jacobson	535
180	Paulette Jacobson	Jacobson	666
158	Holly Jaeger	Jaeger	568, 569
163	Megan Jaeger	Jaeger	568, 569

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160	Sandie Jaeger	Jaeger	568, 569
164	Tech Jaye	Jaye	568, 569
129	Clive Johanin	Johanin	568, 569
130	Jonelle Johannsec	Johannsec	568, 569
204	Cynthia A. Johnson	Johnson	821
11	Wade Johnson	Johnson	31, 32, 33, 34, 35,
GF	Carol Jones	Jones	300
204	Carole Jones	Jones	821
204	Katie Jones	Jones	821
GF	Lew Jones	Jones	225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 492, 493, 494, 495, 496, 497, 498, 499, 363, 364, 365, 366, 364, 365, 366, 367, 368, 369,
204	Marjorie Jones	Jones	822
202	Rep. Llew Jones	Jones	819
C	Wendy Judisch	Judisch	469, 469, 470,
182	Joseph & Diane Karcher	Karcher	672, 673, 674, 675, 676,
165	Wendy Kasun	Kasun	577
41	Leanne Kavanagh	Kavanagh	215, 215, 216, 217, 218, 219, 220, 221, 222, 223, 388,
CB	Marvin Kemmitt	Kemmitt	386, 387
106	Susan Kimmet	Kimmet	568, 569
180	J. Kline	Kline	666
202	Rep. Harry Klock	Klock	817
114	Donald Koenig & Michael Koenig	Koenig	593
30	Koepke Farms	Koepke	517, 518
GF	Mike Koepke	Koepke	126, 127, 128, 129, 512, 514, 515, 516, 519, 520, 521, 522, 523, 524,
97	Amy Krause	Krause	568, 570, 575
191	Bonnie Kronebusch	Kronebusch	715, 716
GF	Ted Kronebush	Kronebush	246, 247, 248
141	Geni Laden	Laden	621
140	Mick Laden	Laden	621
142	Scott Laden	Laden	621543
202	Sen. Rick Laibbe	Laibbe	819

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202	Rep. Bob Lake	Lake	818
202	Sen. Lane Larson	Larson	810
96	Ken Larson	Larson	570, 575
202	Sen. Jesse Laslovich	Laslovich	811
GF	Robert Lee	Lee	304, 305
131	John Lemme	Lemme	568, 569
202	Sen. Dave Lewis	Lewis	812
79	Mike & Jessi Lytle	Lytle	566
202	Rep. Gary Maclaren	MacLaren	811
89	Dan Majerus	Majerus	578, 584, 585
GF	Katrina Martin	Martin	103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 736, 737, 738, 739, 740, 741, 742, 743, 744, 742, 743, 744, 745, 746, 747, 748, 749, 755, 754, 755, 756, 757,
208	H. Mattsen	Mattsen	827
11	Larry L. Maurer	Maurer	46, 47, 48, 49, 50, 51, 52,
127	Wendy Mcairene	McAirene	568, 569
CB	Bill Mccauley	McCauley	343, 344, 345, 241, 242, 243, 244, 245, 344, 345
24	Burke Mccormick	McCormick	95, 96, 97, 98, 99, 100, 101
79	John & Janice Mcfarland	McFarland	566
18	John L Mcfarland (Conrad Building Center)	McFarland	81, 82, 83, 84, 293, 294, 467, 468, 822
GF	Jerry Mcrae	McRae	194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 525, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 851,
74	Melisa Mcrae	McRae	458, 489, 460, 461, 458, 459, 460, 461,
14	Locke Mellott	Mellott	57, 58, 59, 60, 61
202	Rep. Scott Mendenhall	Mendenhall	819
199	Alan Merrill	Merrill	772, 773, 774, 775
202	Rep. Mike Milburn	Milburn	814
112	David Mildrexler	Mildrexler	589, 590, 591, 592
23	Dave Miller	Miler	94
179	Dave Miller	Miller	659
180	David T. Miller	Miller	666

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204	G. Mills	Mills	822
128	Jerry Mioem	Miom	568, 569
180	Rachel Monty	Monty	662
176	Carol Morgan	Morgan	568, 569
180	Jewel Moritz	Moritz	666
165	Kim Mosley	Mosley	577
55	Juanita Muhr	Muhr	544
205	Robert & Ali Newkirk	Newkirk	823, 824
125	Tamie Nic	Nic	568, 569
202	Rep. Bill Nooney	Niiney	810
43	Ben Ober	Ober	531, 568
202	Rep Jesse O'hara	O'Hara	811
180	Jeannie Olmstead	Olmstead	666
204	Betty Olson	Olson	822
79	Harold & Betty Olson	Olson	566
204	Harold D. Olson	Olson	820
GF	Harold Olson	Olson	130, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435,
202	Rep. Alan Olson	Olson	812
180	Melissa Osther	Osther	663
122	Sean Pahut	Pahut	606, 607, 608, 609
202	Rep. Hjohn Parker	Parker	812
GF	Jesse Parks	Parks	132
CB	Gabriel Pearson	Pearson	394
180	Sandra Peen	Peen	666
209	Philip Perszyk	Perszyk	828
202	Rep. Ken Peterson	Peterson	810
202	Sen. Jim Peterson	Peterson	813
202	Rep. Mike Phillips	Phillips	813
79	Karla Pogreba	Pogreba	566
180	Nancy Potter	Potter	666
168	Kathleen Rankin	Rankin	568, 569
C	Doug Ray	Ray	418

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133	John Ray	Ray	613, 618
117	Cheryl Reichert	Reichert	596, 597, 598, 599
94	Julie Reighard	Reighard	568, 569, 568
C	Ronald Reis	Reis	476
CB	Marty Reynolds	Reynolds	568, 569
82	Shari Richter	Richter	567
133	Ron Rides At The Door	Rides at the Door	613, 618
204	Bernard Ries	Ries	821
204	Curtis Ries	Ries	821
79	Deborah Ries	Ries	566, 566, 821
204	Maryann Ries	Ries	822
204	Ronald Ries	Ries	820
202	Rep. Rick Ripley	Ripley	814
85	Brian Roark	Roark	568, 569
19	Scott Robar	Robar	85, 86, 87
180	Phyllis Robertson	Robertson	666
165	Sherry Roos	Roos	577
71	Corrine Rose	Rose	549, 549, 820
156	Robert Ross	Ross	568, 569
173	Ruth Rudner	Rudner	647, 717
165	Mike Rudolf	Rudolf	577
107	Dave A Ryan	Ryan	568, 569, 568, 569
202	Sen. Don Ryan	Ryan	818
79	Cheryl A. Sawyer	Sawyer	566, 821
185	Brenda Schilling	Schilling	689, 690
202	Sen. Trudi Schmidt	Schmidt	814
153	Andrew Scott	Scott	568, 569
161	Kathy Semmli	Semmli	568, 569
162	William Semmli	Semmli	568, 569
159	Matt Sendor	Sendor	568, 569
143	Gene Sentz	Sentz	622, 622, 623, 623, 624, 624, 625, 625, 626, 626, 627, 627, 628, 628, 629, 629, 630, 630,

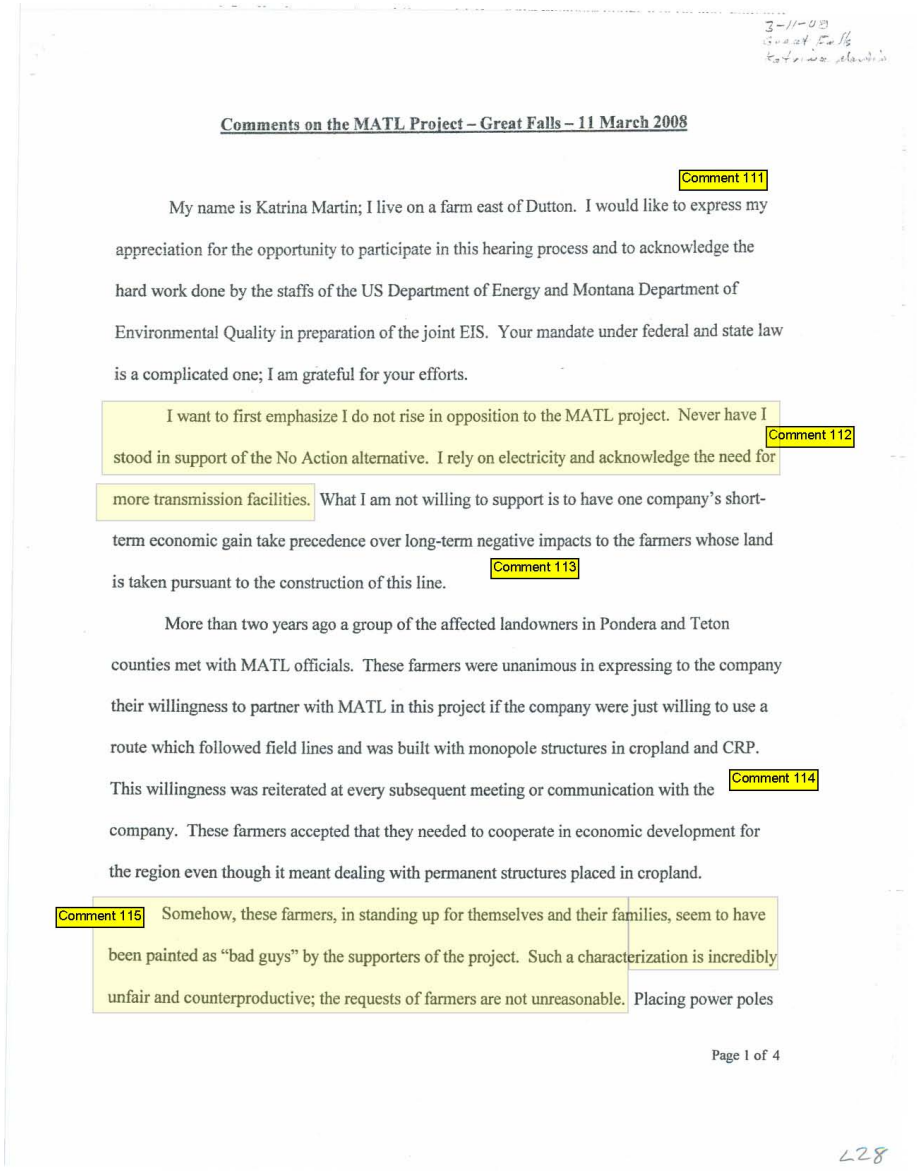
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202	Rep. Jon Sesso	Sesso	815
35	Steve Sheffels	Sheffels	145, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 192, 193,
188	Jessica Sherburne	Sherburne	696, 697, 698, 699, 700, 701, 702, 703,
189	Steven Sherburne	Sherburne	704, 705, 706,
GF	John Shevlin	Shevlin	205, 205, 206, 207, 208
79	Lohn P. & Penny Shevlin	Shevlin	566
GF	Tom Shock	Shock	276, 277, 278, 279, 280, 281,
GF	Dale Siefert	Siefert	295, 296, 297, 298, 299, 820
CB	Tony Sitzman	Sitzman	396, 397, 358, 359, 360, 361, 358, 359, 360,
GF	Gordon Smesdrud	Smedsrud	131
56	Fritz Smith	Smith	545
98	Michael Smith	Smith	568, 569
76	Everett Snortland	Snortland	560, 561, 821
135	Dennis Someday	Someday	568, 569
180	Don South	South	666
93	Phil Springer	Springer	570, 571, 575
202	Rep. Wayne Stahl	Stahl	816
180	Julie Stakes	Stakes	666
202	Sen. Don Steinbeisser	Steinbeisser	817
72	Chris Stephens	Stephens	425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 847, 848, 849, 850, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874,
CB	Joni Stewart (Mayor Of Cut Bank)	Stewart	346, 346, 347, 348, 348
44	Robert Stewart (National Park Service)	Stewart	615, 616
C	Eric Strom	Strom	471, 472, 473, 474, 475,
208	Greg Strutz	Strutz	827
204	Sandy Syvertson	Syvertson	821
120	Maurice Tack	Tack	602, 603, 604

Log Number	Name	Last Name	Response Number
155	Fredrick Trafelet	Trafelet	639, 640, 641
42.5	Buck Traxler	Traxler	529, 530, 566
202	Sen. Joe Tropila	Tropila	816
C	George Tsonga	Tsonga	482, 483, 484
GF	Allan	Underdal	122, 123, 124, 125, 510, 511, 513,
179	Allan Underdal	Underdal	659, 664
1	Unknown 1	Unknown 1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10,
87	Lynn Utterback	Utterback	568, 570, 572, 573, 574,
204	Gerri Vandenbos	VandenBos	821
79	John Vandyke	VanDyke	566,
CB	Dave Brownell Read Letter From Valerie Vermohlen	Vermohlen	337, 338
67	Valerie Vermohlen	Vermulm	547, 547, 547, 548
79	William Vandenbos	Vnadenbos	566
208	Fred And Carletta Vroman	Vroman	827
180	Karla A. Wagner	Wagner	666
180	Myrna Wallan	Wallan	666
165	Kathy Walter	Walter	577
208	Tracey War	War	827
202	Rep. John Ward	Ward	817
99	Peggy Warm	Warm	568, 569
180	White	White	666
204	Bev Widhalm	Widhalm	821
204	Ronald Widhalm	Widhalm	822
195	Bob Williams (MATL)	Williams	721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735,
166	Todd Williams	Williams	568, 569
GF	Del Wilson	Wilson	309, 310, 311, 312
202	Rep. Bill Wilson	Wilson	818
202	Rep. Jonathan Windy Boy	Windy Boy	819
184	Zack Winestine	Winestine	683, 684, 685, 686, 687, 688,
208	Rebekah Wright	Wright	827
137	George Wuerthner	Wuerthner	617
165	Dave Illegible		577
172	Diane F Illegible		568, 569

Log Number	Name	Last Name	Response Number
CB	Female Speaker		398, 399, 490, 491
79	Ilegible 1		566, 566
82	Ilegible 2		567
180	Illegible 3		666, 666, 666, 666
204	Illegible4		820, 820, 820, 820, 821, 822, 822, 822
165	Illegible 5		577, 577, 577, 577
C	Jackie ?		489, 490, 490
165	James Illegible		577, 577
202	List Of Senators & Representatives		809
CB	Male Speaker, Cut Bank		390
C	Male Speaker, Conrad		490
126	M-SOMEBODY Illegible		568, 569
79	Paul Illegible		566
198	Robert Stewart (National Park Service)		766, 767, 768, 769, 770, 771,
103	Ronald Illegible		568, 569
79	Sandy Illegible		566
C	Unknown		481
79	Multiple signers		566
204	Multiple signers		204
208	Multiple signers		827
165	Multiple signers		577
180	Multiple signers		660
CB	Woman Speaker		370

PART 4. ATTACHMENT

The following letters were read at the public hearings and comments are addressed above. The letters were submitted at a later date and are included in this attachment.



3-11-08
Great Falls

Comments on the MATL Project – Great Falls – 11 March 2008

Comment 111

My name is Katrina Martin; I live on a farm east of Dutton. I would like to express my appreciation for the opportunity to participate in this hearing process and to acknowledge the hard work done by the staffs of the US Department of Energy and Montana Department of Environmental Quality in preparation of the joint EIS. Your mandate under federal and state law is a complicated one; I am grateful for your efforts.

I want to first emphasize I do not rise in opposition to the MATL project. Never have I stood in support of the No Action alternative. I rely on electricity and acknowledge the need for more transmission facilities. What I am not willing to support is to have one company's short-term economic gain take precedence over long-term negative impacts to the farmers whose land is taken pursuant to the construction of this line.

Comment 112

Comment 113

More than two years ago a group of the affected landowners in Pondera and Teton counties met with MATL officials. These farmers were unanimous in expressing to the company their willingness to partner with MATL in this project if the company were just willing to use a route which followed field lines and was built with monopole structures in cropland and CRP. This willingness was reiterated at every subsequent meeting or communication with the company. These farmers accepted that they needed to cooperate in economic development for the region even though it meant dealing with permanent structures placed in cropland.

Comment 114

Comment 115

Somehow, these farmers, in standing up for themselves and their families, seem to have been painted as "bad guys" by the supporters of the project. Such a characterization is incredibly unfair and counterproductive; the requests of farmers are not unreasonable. Placing power poles

Page 1 of 4

428

on a diagonal running through cropland and CRP should be a thing of the past. New farming techniques and larger equipment make such transmission structures environmentally unsound and too economically burdensome. Comment 116

Comment 117 I do not begrudge this company and its investors the chance to make a handsome profit from filling a well recognized need for increased electric transmission – more power to them (no pun intended). To see the extent of that profit, simply visit the Tonbridge website where it is reported the company projects revenues of nearly a billion dollars from the twenty-five year contracts now in place. It thus defies the imagination to take as credible, the company's current claim it cannot possibly be expected to spend around $5 million extra dollars to implement the alternative (Alternative 4) which the agencies have analyzed as being "... the most protective alternative for the maintenance and enhancement of long-term productivity of the environment while benefitting socioeconomic resources."[1] Comment 118

Comment 119 Our state has accorded MATL many advantages since its application was filed. From the outset, the economic development staff in the Governor's Office has worked closely with the company to help it achieve its goals. The 2007 Legislature created an energy infrastructure promotion office with a $330,000 annual budget whose sole mission includes assuring the MATL project gets built. The Legislature also enacted a 75% property tax cut for the company from which it will reap nearly $800,000 each year (a tax break for property owners whose land is taken amounts to $40,000).

With all this help from the government, it seems impossible to view this company as persecuted because the farmers who will forever bear the burden of the line are not willing to just let the company build the line as cheaply as possible. Comment 120

[1] §4.19, Draft EIS

Over a 50-year life of the facility, the property tax break dollars by themselves will nearly pay for the construction of the line in Montana, projected at approximately $40 million. Comment 122 It is not unreasonable for farmers to push for adoption of Alternative 4 when that agency alternative clearly recognizes the validity of the producers' position and mitigates serious adverse effects on production agriculture. Comment 123

But let's return for a moment to the advantages accorded to this company by our state. Looming over every affected property owner is the knowledge that this Canadian company, building a for-profit merchant line, has the power to condemn the land it says it needs. This company (with its billion dollar revenue projection) has the authority to invoke eminent domain over property owners. These farmers' private property rights can be extinguished to make way for this merchant line, a line which is not regulated by the PSC because under the law it does not constitute a "public utility" from which Montana consumers are guaranteed to benefit. Is it any wonder these landowners hope the regulators will at least insure that the chosen alternative reduces negative environmental and economic impacts to those owners? Comment 124 Comment 125

Not long ago I came across a clear policy statement issued by the Montana Legislature that seems relevant to the current permit application: Comment 126

> It is the policy of the state of Montana to promote energy conservation, production, and consumption of a reliable mix of energy sources that represent the least social, environmental, and economic costs and the greatest long-term benefits to Montana citizens.[2]

Alternative 2 does not represent the least environmental and economic costs to Montana citizens; instead, it represents the least cost to the company. Alternative 4, the agencies' alternative, **does** Comment 127

[2] §90-4-1001, MCA.

represent the least social, environmental, and economic costs and the greatest long-term benefits to Montana citizens. Comment 128

I do not oppose this project, even though I can't say I look forward to having yet another large transmission line in my neighborhood. I do support the issuance of a permit based upon Alternative 4. This line, and the future lines which we know are coming, need to be built on an orientation with field lines and the use of monopoles in cropland and CRP. Farmers who have been stewards of these lands for generations should not have to bear the burden of unsafe, costly structures in their cropland and CRP simply because a company wants to keep a bit of extra Comment 129 money in its pocket. That should not be the way we do business in Montana; good public policy prescribes the choice of Alternative 4 as the basis for the permits at issue here.

Thank you for your consideration.

Katrina Wilson Martin
1720 24th Ln. NE
Dutton, MT 59433
406-463-2337

Page 4 of 4

March 10, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 134

I'm a producer in Glacier County. The MATL line will be going through my property. I want to be on record that I'm in support of the MATL line and wind generation in Glacier County.

This is an opportunity for me personally to help the economy of Glacier County and for myself. I have no mineral rights to the land that I bought in 1987. This Comment 528 will give me the chance to have an additional income source for my farm. Glacier County has been suffering through a drought.

Change is hard to deal with but this is an opportunity for our area to bring in a Comment 529 new business that is clean and friendly for the environment. I'm willing to deal with some inconvenience to do my part to help bring new business to Glacier County.

The MATL line and wind generation will increase the tax base for the County. This will help our tax bills, provide more for our schools, and help build our Comment 530 infrastructure.

I support the MATL line.

Thank you.

Mike Koepke

L29

P.O. Box 777
Conrad, MT 59425

Pondera Regional Port Authority

1-406-271-4010
1-406-278-7525
pococo@3rivers.net

March 11, 2008

Mr. Chairman:

I am Cheryl Curry, Executive Director for the Pondera Regional Port Authority.

A Port Authority is defined in Montana law and is created by resolution and public vote with our purpose: to promote, stimulate, develop and advance the general welfare, commerce, economic development and prosperity of its jurisdiction and of the state and its citizens. A Port Authority also is to act in cooperation and in conjunction with other organizations to develop industry, manufacturing, natural resources, services, agriculture, health care, and other economic activity.

Our goal is to help create a vital community for future generations of rural Montanans.

The Pondera Regional Port Authority supports the Montana Alberta Transmission Line. The construction of this line will have strong positive economic impact in the area and creates the potential to develop wind power in the future. The power line and associated wind development will add jobs and tax base to our struggling economy. It is clean and has low impact on the environment. I have read the environmental impact statement and believe the economic benefit outweighs the few minor environmental concerns. There are inconveniences to affected farmers and ranchers, but they are compensated to a certain extent by annual and one-time payments from MATL as well as by tax reductions on the affected land.

Comment 145

Comment 146

Comment 147

As a nation, our energy demands are ever increasing and our options for production are limited. The development of clean wind power and the lines to transport it makes sense.

Please support the construction of the MATL Transmission Line. The environmental impacts are minor and the economic benefits are great.

Comment 148

Thank you for your consideration.

Sincerely,

Cheryl Curry

Cheryl Curry
Executive Director
Pondera Regional Port Authority
311 South Main, Suite D
Conrad, MT 59425
406 271-7237
pcpconrad@3rivers.net

Local Economic Development Solutions

433

Lorette Carter
112 1st St. So.
Shelby, MT 59474

March 11, 2008

Comment 149

Good evening, my name is Lorette Carter, Economic Development Director for the City of Shelby. I am not here tonight to speak as city government, but as a parent. We are very fortunate here in Montana to have exceptional colleges and universities for our children to receive a post-secondary education. I have three sons, one who has graduated and 2 that presently attend Montana Tech. These boys are receiving an incredible education, yet we are educating them to leave the state. In 2006 statistical information for Montana Tech School of Mines & Engineering graduates, 75% went to work out-of-state. My son is an Occupational Safety & Health Engineer in Paramus, New Jersey and my second son is now pursuing a second degree in the hopes to remain in Montana after graduation. Projects such as the Montana Alberta Transmission Line have the potential to create opportunity and employment for our children. This project may have limited permanent employment opportunity but has tremendous potential to open the doors to other clean viable industry in our state. Projects of this magnitude require numerous secondary services and project related employment. It will generate tremendous tax reductions and wealth within our communities that may translate into new industry and job creation. Ultimately, it announces to all that Montana welcomes clean viable industry and that our best and brightest need not leave the state to find good jobs. Outside interests have many voices, but I hope you will consider the voices of those who live, work and raise our families here. Help us keep our small rural communities alive for our children to return and to benefit generations to come

Comment 150

Comment 151

Comment 152

Lorette Carter

Lorette Carter
112 1st St. So.
Shelby, MT 59474
(406) 424-8799

434

SHEFFELS FARMS, Inc.
PO Box 1545 Great Falls, MT 59403-1545
Office: (406) 761-8805 Shop: (406) 761-4882

March 11, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
P. O. Box 200901
Helena, MT 59620-0901

Re: Federal Draft Environmental Impact Statement and State of Montana Supplemental Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line

Dear Mr. Ring;

Thank you for the opportunity to comment on the subject documents. As you know, we farm near the south termination of this line just north of Great Falls. We have several concerns that were not addressed by the draft proposal and new concerns that have arisen since our last opportunity to comment.

Some of the concerns that we feel need to be addressed are as follows:

- Long-span monopoles with 6.5 foot-wide concrete foundations should be required for any portion of the transmission line that cross or border farm fields. It has been reported that the Alberta portion of the proposed Montana Alberta Tie Line is being required to use single poles through farming lands. Is this true? Although the initial cost might be somewhat higher, these lines are built to last a long time. We have been farming around existing lines for over 70 years. Less land is removed from production and it is much easier to maneuver around a single pole than a double pole design. Very serious consideration should be given to weigh the difference in short-term, up-front costs against the long-term costs to the farmer who will be living with these decisions for generations. What justification could be used to treat farmers differently on each side of the border? Comment 153 Comment 154 Comment 155 Comment 156

- How will the alternate routes of the MATL be evaluated? Will there be a public, open process? How will the weighting of the various factors be decided? Who decides the weighing factors? Who decides between the alternatives? Comment 157

- House Bill 3 of the May 2007 Special Session permanently reduces the property tax rate from 12% to 3% for new investments in transmission lines that are constructed after June 2007. For alternative 4, this change has reduced the total property tax income from $3,157,952 to $789,488. Cascade County's income is reduced from $435,360 to $108,840. How does this new rate affect the approval process of the MATL line? What, if any, taxes will MATL be paying to the state of Montana for the revenue they receive from doing business in the state (above and beyond property taxes)? Comment 158

- Landowners of wind towers are being compensated ~$2,500 per tower per year. How does this compare with what is being proposed for transmission line easement owners? It seems that wind tower owners are receiving much more. Both project types are being funded by private investment. Both project types impact the landowner in similar ways. Why isn't MATL required to pay market rates for land use like the wind tower project owners are? Comment 159

- Does MATL comply with Federal Energy Regulatory Commission Order 890? If not, why not? What changes occurred or would be required for compliance? Will the EIS be updated to reflect these changes/requirements? Comment 160

- MATL claims in the EIS that they will be responsible for damages to land and crops from emergency repair operations. What will the process be for making these claims? If there is a dispute, what recourse will the landowner have? What will be the differences in dealing with a Canadian corporation vs. a US corporation? Should some sort of a bond be required of a foreign corporation to guarantee their obligations? Comment 161 Comment 162 Comment 163 Comment 164

- What will happen if MATL goes out of business? Who will own the line? Will all of the obligations that MATL is entering into upon building the line transfer to whomever buys it? Comment 165 Comment 166

- MATL has received numerous comments suggesting farm machinery can reach 25 feet in height. Has MATL changed their plans to account for this information? What is MATL doing differently? (It is reasonable to expect that farm equipment will be used under the line that will require 20-25 feet of clearance. Current air drills have a travel height of 19 feet. The current models are not large enough to be of economic use on our property. We expect that larger equipment will be available in the future and that we will use it.) If further restrictions (i.e. limiting equipment height under the line) on our land use are required, will there be additional compensation? Comment 167 Comment 168

- Market forces have significantly changed the cost of inputs described in Attachment DL-xx. Here are some examples: Comment 169

Input	EIS cost	Current cost	Units	% Change
Roundup (RT3)	$21.50	$37.00**	Gallon	77%
Crop	$6.00	$12.50	Bushel	108%
Seed	$16.00	$28.00	Bushel	75%

** RT3 over $50/gal in some areas today.

Comment 170 RT3 @ $50/gal is a 133% increase over the original EIS. Dramatic changes in costs can occur in relatively short time frames. Our family has been farming our land for over 90 years. How will farmers be compensated for changing costs over the life of the power line? Will the EIS be updated to reflect current costs? Comment 171a What changes will result in MATL planning/policy as a result of this new information? Will annual per-pole compensation be adjusted? Comment 171b

- There are a number of planned projects bringing power to the Great Falls area: Comment 172

Rainbow dam upgrade	-	25MW (increase)
MATL line	-	300MW
Highwood generating station	-	250MW
Cutbank wind farm	-	210MW (total – some portion to come to Great Falls)

Where is the EIS/analysis of the construction needed to move this power out of the Great Falls area? These projects alone would cause an 80% increase in power exported out of Montana. What is the environmental/economic impact of not having a process for planning changes to power infrastructure? Comment 173 With the withdrawal of federal funding from the Highwood generating station, will MATL be responsible for determining the impact of transmission lines required to move power from Great Falls? If not MATL, who? Comment 174

- Why bring the MATL line to Great Falls? With the projects noted above, there will be little or no capacity to transfer the power south of Great Falls (already noted as constrained by the EIS). Comment 175

- Where is the benefit to Montanans? As noted above, the power is likely to flow from Montana to Alberta a vast majority of the time. If the purpose of the line is to export power, why not say so? Comment 176 Is it in the best interests of Montanans to ship our clean, renewable hydro and wind power to Canada? Comment 177 If the purpose of the line is to make money for MATL (which it should be) why shouldn't MATL be paying market rates for their easements like wind farm owners? Comment 178 Are there other power line connections between the US and Canada? How did local power prices change after the connection? Comment 179

Comment 181 • How can MATL justify building ~100 miles of transmission line just to avoid tariffs at the Cutbank or Shelby substations? Do MATL's profits weigh higher with regulatory authorities than all of the impacted landowners to the south? Comment 182 The attitude seems to be, 'If the project is described correctly, eminent domain can be used to 'take' the required right-of-way to maximize profits for the corporation.' Comment 183

- With the Cutbank wind farm, there probably won't be any capacity to move power from the Cutbank substation to the south. However, that is true for Great

Falls as well. With the new wind farm, is there enough capacity at the Cutbank station to supply MATL with 300MW into Alberta? If MATL connected near Cutbank, would there be enough capacity for the Cutbank wind farm to complete their Phase 3 plans? Comment 184

Comment 185 • Power poles on farmland will be hit by farm equipment. (Farmers are expected to maneuver their 30-130 foot-wide implements around these poles 5-10 times per year for decades. Getting too close to poles risks impact. Being too far away takes land out of production and invites weeds.) What plans are being implemented to ensure the safety of farmers, their equipment, their crops, and power consumers? Comment 186 At what point do farmers become liable for hitting power poles? (A nick, a scratch, a dent, damage that requires replacement of a pole?) Comment 187 Comment 188 How much force would damage each of the proposed pole designs? If a farmer lost control of his tractor (heart attack or stroke) and it took down a pole, how much liability could the farmer have? Comment 189

Comment 190 • Poorly maintained power lines have been known to cause fires. Will MATL be liable for any damage caused by their line? What limits will there be?

Comment 191 • Should portions of the line near the terminations be constructed to enable additional capacity or multiple lines? We are interested in encouraging some intelligent design and future planning with regards to the clutter now existing around substations.

Comment 192 • The line itself should be designed for increased capacity to avoid the necessity of adding new poles in the future. Is the provision for 230KV enough? MATL Comment 193 suggests that the capacity can be increased to 400MW in each direction. What changes need to be made to increase this capacity? Will easements need to change? Comment 194 How will landowners be compensated?

Comment 195 • Was MATL a party to The Northwest Wind Integration Action Plan? If not, why not? Who was MATL's representative? What, if any, actions does MATL plan with regards to The Northwest Wind Integration Action Plan?

Comment 196 • As the MATL line is behind schedule, what is the current state of the TSRs that have been awarded thus far? When do the bids expire? How is it that MATL has accepted bids for 300MW north to south when there is not capacity to move this power from Great Falls? Comment 197

We are sure that the average person does not understand just how difficult it is to farm around obstacles such as power poles. We will probably always object to having them forced upon us. That said our objections would be reduced significantly by receiving fair, annual, cost-adjusted compensation and by having a reasonable plan for future development that optimized the impact to our land, the state, and our community. Comment 198

Comment 199

We are extremely concerned that there is not a plan, nor does there seem to be a planning process for transmission line development. We currently have four lines running across our property. The MATL transmission line would be the fifth. Without a comprehensive plan, it is difficult to know how many there may be in the future. Given this lack of planning, and given the lack of capacity out of Great Falls, we believe that Alternative 1, or the status quo, is the right alternative for now.

Thank you,

Sheffels Farms, Inc.

Jim Sheffels John Sheffels Steve Sheffels

5

JOHN SHEVLIN
Mayor

AGNES FOWLER
Finance Officer

AUDREY BROWN
City Judge

GARY DENT
Police Chief

CITY OF CONRAD

411 1/2 SOUTH MAIN
CONRAD, MONTANA 59425
PHONE: 406-271-3623 FAX 406-271-5602

GARY BROWN
SANDY SYVERTSON
WALLY McHENRY
WENDY JUDISCH
Aldermen

March 10, 2008

To Whom It May Concern:

Comment 210

As Mayor of Conrad I strongly support the Montana Alberta Transmission Line (MATL). The economic benefits to our community would be very substantial. The benefits from the line and the resulting wind farms would go a long way in easing the tax burden on the county level. An example would be the large infusion of tax money from the Judith Gap wind farm.

Comment 211

Due to low unemployment, permanent workers with families and children would relocate to our area. This would greatly help our school systems. Currently the school system is looking at remodeling the local high school and elementary school. The additional tax money would ease the burden on existing tax payers.

Comment 212

In this area we do not get a lot of opportunities for economic development. When projects like the MATL Line and wind farms come along they should be embraced and supported by the whole community.

Comment 213

I would like to take this opportunity to encourage the D.E.Q. and the D.O.E. to give favorable status to this project.

Sincerely,

John P. Shevlin
Mayor
City of Conrad

C36

Discover Cut Bank

March 10, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 220

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Montana Alberta Tie Transmission Line. The Cut Bank Area Chamber of Commerce would like to go on record, once again, offering its full support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). Our organization is approximately 140 members strong and is dedicated to the promotion of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

Comment 221

We applaud the steps taken by MATL officials to respond to the concerns raised by landowners, whose property would be affected by the line. We support the new law which provides a property tax break to land owners whose land is crossed by the line and transfers the responsibility for the tax on the affected land to MATL. 222 The Chamber supports MATL's decision to use monopoles instead of "H frame" structures along the 53 miles of cultivated land where the line crosses fields diagonally, thereby lessening the impact of the line on farm and ranch operations. 223 The Cut Bank Area Chamber of Commerce is not insensitive to the ag producers whose operations are affected by this project or to those who have expressed concern over the project's impact on the environment and historic and/or culturally significant areas. We are hopeful changes proposed by MATL officials will result in a "win-wind" situation for all parties involved. 224

The Cut Bank Chamber believes the transmission line holds the key to the development of a number of wind park projects in this area, most notably the McCormick Ranch Wind Park, which will be located in both Glacier and Toole Counties. 225 The development of wind power as a clean and green, renewable energy source will greatly enhance our stagnant tax base, potentially reducing property taxes for all our residents–whether they be farmers, ranchers, small business owners or individuals struggling to make ends meet on a fixed income. 226

Due to the nature of this project, we are well aware the number of permanent jobs created will be limited, but any increase in job opportunities trickles down into our communities by way of increased school enrollment and additional consumer buying power. Comment 227

Thank you for the opportunity to express our support for this project. We look forward to hearing very soon that a Presidential Permit has been issued for the project and we urge the Montana DEQ and BLM issue the needed certificates of compliance and right-of-ways as required. Comment 228

LeAnne Kavanagh, President
Cut Bank Area Chamber of Commerce

Cut Bank Area Chamber of Commerce

P. O. Box 1243 • Cut Bank, MT 59427 • (406) 873-4041

41

February 14, 2008

Montana Department of Environmental Quality
Environmental Management Bureau
Mr. Tom Ring, Environmental Science Specialist
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 274

Glacier Electric Cooperative, Inc. would like to offer its unequivocal support for the Montana Alberta Tie Line. In our opinion, it is one of the most promising and beneficial projects, not only for the local area, but for the State of Montana, that we have seen in many years.

Construction of the tie line, and the associated wind generation facility, will create a positive impact on our area in many ways. Comment 275

As a utility, it will offer an opportunity to interconnect, if the necessity arises, to utilize the capacity of the transmission line. It will also provide an opportunity for us to participate in the maintenance of the system in the future. Comment 276

Socially, it will create jobs both during the construction phases and after completion in the maintenance and operations stages. The activity associated with the construction itself will create additional business for local merchants and suppliers. Comment 277

Economically, it will help our county, which has been suffering from a severe economic recession for many years, by improving the tax base which will assist all local residents. Comment 278

Last, but most significantly, it will benefit the entire state of Montana by providing a desperately needed transmission path for power created by new generation facilities that will develop in the vicinity of the new line, and elsewhere in Montana and in Alberta. Comment 279

Letter #40

Mr. Tom Ring
page 2
February 14, 2008

Comment 280

We congratulate the Montana Alberta Tie Line group on their innovative and progressive approach and wish them every success with the construction and operation of the transmission line.

Sincerely,

Jasen R. Bronec
General Manager

Triangle Land & Livestock Co., Inc.
Barr & Colleen Gustafson
P.O. Box 568
Browning, MT 59417
Ph: (406) 338-5220 FAX (406) 338-5220
e-mail docbarr@3rivers.net

March 12, 2008

To: Montana Department of Environmental Quality
From: Colleen Gustafson

To Whom It May Concern:

We are sorry we are not able to attend the hearing in person, but we are in the midst of calving.

Comment 340

We would like to express our strong support for the Montana Alberta Tie Line. It is imperative that this region develops infrastructure and business opportunities to bolster the economy and expand the tax base. It is increasingly difficult for the existing small business owners to bear the burden of business and real property taxes.

Comment 341

This is a tremendous opportunity to open the doors to new and responsible development. We encourage all parties to work together to mitigate any problems with the placement of this line, and offer our strong support for proceeding with the Montana Alberta Tie Line.

Comment 342

Sincerely,

Colleen Gustafson

457

CUT BANK
BUILDING SERVICE
227 East Railroad
Cut Bank, Montana 59427

BUS. 406-873-2293 • FAX: 406-873-4423

TO: State of Montana Dept. of Environmental Quality
FROM: Bill McCauley
SUBJECT: Montana Alberta Tie LTD (MATL)
DATE: 3-11-08

To Whom it may Concern. Comment 353

As a local business person and city council person I wish to go on record as supporting the project, but would request that the farmers and ranchers that the line crosses are taken care of both financially and by future agreements in writting to all parties.

Comment 354 This project is a great boost to our over burdened tax base. I have heard the argument that we are allowing the line owner to much short term tax break, but I ask you what is 100% of 0 which we have now.

Comment 355 Our Rural co-operatives are the backbone of electrical rural America and if they feel its a good deal which they do, shouldn't we.

Once aggin on behalf of a taxpayer from many phases I fully support this project

Bill McCauley
318 1ST AVE S.W.
CUT BANK, MONT. 59427

L62

CITY of CUT BANK

221 West Main • (406) 873-5526 • Fax: (406) 873-2455 • Cut Bank, MT 59427

March 12, 2008

Tom Ring
Montana Department of Environmental Quality
Environmental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring:

Comment 356

The purpose of this letter is to indicate the City of Cut Bank's full support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). We have reviewed the Draft Environmental Impact Statement and find this project to of great benefit to Glacier County and the surrounding area.

Comment 357

We believe MATL response to the concerns raised in previous public meetings have been thoroughly addressed and commend MATL officials on their efforts to create a positive situation for all involved. Wind energy projects are one of the most viable answers to developing clean and green industries for Northern Montana.

Comment 358

On behalf of the City of Cut Bank, we urge MDEQ and BLM to issue the certificates required for compliance and right-of-ways and look forward to hearing a Presidential Permit has been issued.

Should you have any questions, please don't hesitate to contact me at 406-873-5526 or at the above address.

Sincerely,

Joni Stewart

Joni Stewart, Mayor

L61

Jackie Bologna gp.?

3-12-08
Out Book

Eco Development
Growth in school population Comment 359
Growth in small business
Youth opportunities → career opportunities = stay in Montana
~~Outreach to urban communities~~
Construction → help our business

L60

PONDERA COUNTY
20 4TH AVENUE S.W.
CONRAD, MONTANA 59425

March 11, 2008

Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

Re: MATL Transmission Line

Comment 421

The Pondera County Board of Commissioners strongly supports the construction of the Montana Alberta Tie LTD 240/230 kV merchant transmission line.

There are a plethora of reasons to support the construction. If environmental concerns were your only criteria, the minimal trade-offs imposed by this new construction would be well worth the value to our society and to the environment simply for the capability to transmit clean, green power. Given the fact that most of the carrying capacity of the line has already been obligated to wind developers, transmission of renewable energy seems assured. Comment 422

As Commissioners, we are responsible for the fiscal operations of Pondera County. We look to the construction of this line and associated wind generation facilities as a way to broaden the tax base, while simultaneously alleviating the tax burden on our existing taxpayers. The approximately $260,000 dollars in property taxes directly from the line would be a more than welcome addition. The transmission line would also be the catalyst for wind farm developments such as that in Judith Gap, MT, where that wind project pays approximately $1.2 million in taxes to the county it is located in. To put that into perspective, the entire budget for Pondera County in fiscal 2008 was $7 million dollars. From an economic viewpoint, factoring in additional people, businesses and support services both for the line itself and accompanying wind towers, the positive fiscal impact of this project could be critical for the sustainability of our communities. Comment 423

As Commissioners, we also have a duty of care towards all the residents in the county which includes a variety of businesses as well as agriculture. With all three Commissioners involved in businesses and two of our three commissioners actively involved in production agriculture, it is a duty that we take very seriously. There is no denying that farming around power poles is costly, inefficient and whole variety of politically incorrect adjectives can describe the time and effort Comment 424

L81

Comment 425

involved. It logically follows that it is much simpler to farm around single pole structures that are located on section lines as opposed to the double pole structures that were initially proposed in diagonal field crossings. To the extent practical, monopoles should be utilized. This line needs to be built right, but it must be built. All stakeholders need to recognize that both MATL and farmers face serious financial consequences based on the placement decisions. An equitable balance has to be achieved.

Comment 426

Many of the concerns that we have heard regarding compensation for pole placement should be business negotiations between MATL and private landowners. To that end, we would urge both the DOE and the DEQ to issue any and all necessary permits as expeditiously as possible so that MATL, Ltd. may finalize those negotiations and begin construction.

Comment 427

On behalf of the entire Board of Pondera County Commissioners,

Sandra J. Broesder

Sandra J. Broesder, Vice-Chair

March 13, 2008

Chris Stephens
PO Box 94
Dutton, Mt 59433
406-463-2433, 406-788-0498

Comments for MATL EIS--Conrad hearing

My name is Chris Stephens and my family farms in the counties where this line is being built. We will have at least a mile to a mile and half of this line depending upon the route.

Comment 435

I am disappointed that all the county commissioners and local businesses are more concerned with the needs of the MATL than they are of us longtime faithful taxpayers. We aren't asking for much. We are asking only for a design of this line in a manner that the local cooperatives have long recognized as the proper design for the power infrastructure. It is not a coincidence that the resistance of this line begins with the start of the diagonal portion of this line at Conrad and continues south to Great Falls as does the diagonal. One has to remember that along this portion of line we aren't talking about one diagonal line we are talking about two as there is already a diagonal line that we have had to live with for 30 years.

Comment 436

Comment 437

The northern portion of the line has all the benefits. The north-south orientation and the wind development. The southern all the impacts. The diagonal and no wind development.

Since I have owned my farm east of town here, I have had two power lines, a gas line with a pumping station and a fiber optic line cross this farm and none of them provide service to my farm. I did not oppose them. I am not against progress.

We talk about the tax base and economic development MATL brings to these communities. Let me share the tax base and economic benefits my family provide. We pay $26539 dollars property tax in Pondera county; $64210 dollars in Teton; $39896 dollars in Cascade and $2783 in Choteau county for a total of over $133,000 dollars annually. My older brother and his family, who will have line build on his property in Teton county, spent

Comment 438

$315,000 at Frontline Ag over the last three years for an average of almost $79,000 dollars a year. I myself have spent over $80,000 dollars in the last two months at Frontline Ag. This is just one business. We support many other businesses in Conrad. I am disappointed and angered by the lack of support of Conrad community. We are asking only for this line to be built so that it doesn't negatively impact the people who have supported your schools and businesses before MATL arrived and will be here long after MATL leaves.

Comment 439

The State of Montana, thru its generosity of its tax policy, has given MATL a tax break of between 2.1-2.3 million annually or over 100 million dollars for the projected 50 year lifetime of this project. It's time MATL shows its generosity and agree to spend the 4-7 seven million dollars to build alternative 4 with monopoles. After all, they are actually using our money to build it with. MATL could also show its generosity by purchasing the entire 105 foot easement that they will exercise complete control over, not just the 45 ft. The Alberta Utilities Board is requiring this in Canada, why not here in Montana?

Comment 440

Comment 441

The economic benefits of the wind farms are documented in the EIS, but the impact never mentioned is that these projects do not stand alone. There has to be a network of additional power lines to connect to this merchant line. Are these lines going to be allowed to take off any direction cross country to get to MATL and possibly use eminent domain against those who oppose these additional power lines. MATL is more than willing to use eminent domain to get where its going. In fact, there are people in this room who have already received such letters telling them this. If you live between a windy ridge and this line you too my share in the unpleasant impacts of power development, with none of the money from the towers. The profits are not shared; only the problems.

Comment 442

Comment 443

I, for one, am not interested in maintaining around these poles for MATL. That responsibility lies solely with MATL and the EIS states this; but this company is trying to pass this duty off to the farmers with a pittance of a payment included in the farming impact payments. If MATL thinks that it is possible to do this for the small amount being offered, let them hire a independent contractor do this job. I do not want to be an employee of MATL in any capacity.

In closing, I have been a member of a group of landowners who have been meeting with MATL for over two years. We have never said that we didn't want this built. We have chanted the mantra, field lines, section lines, monopoles, field lines, section lines, monopoles. MATL has not listened. They have always said too much money, too much money, too much money!

I have to wonder how much money is enough for these people. Is the 100 million dollar tax relief that the taxpayers of Montana will have to replace enough? Is the projected revenues of over a billion dollars in the first 10 years of operations enough? Will the profits from the next 5 lines that President Johann promises his stockholders enough?

Comment 444

I want to than the DEQ for designing the Agency Alternate, Alternative 4 and the work they have done. And I want to than Ellen Russell and her coworkers to be curious and concerned enough to actually to ride on a 120 foot sprayer and experience first hand the difficulty these structures are to production agriculture. This same invitation was extended to MATL officials two years ago, but they didn't find interest in it until they saw your example.

Comment 445

Thank you

Chris Stephens

March 13, 2008

RECEIVED
APR 0 3 2008
Dept. Environmental Quality
Env. Management Bureau

Chris Stephens
PO Box 94
Dutton, Mt 59433
406-463-2433, 406-788-0498

Comments for MATL EIS--Conrad hearing

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Comment 438

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Comment 438 (Cont.)

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Comment 439

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3-13-08

Shawn and Lori Dolan
12418 N. Diamond Dr.
Hayden, ID 83835

March 12, 2008

Mr. Tom Ring
Environmental Sciences Specialist
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Re: MATL EIS Comments

Dear Mr. Ring:

Comment 446

I would like to submit my comments on the Federal Draft of the Environmental Impact Statement for the Montana Alberta Tie Ltd. 230 kV Transmission Line. In general we felt that the document was fairly well done and we appreciate the revised economic impact projections and believe the new projections are more realistic than MATL was feeding to the press. The $240,000 annual tax impact to Pondara County may still be a little optimistic though. We are not opposed to the lines construction; however, we do have a few concerns with some of the material presented in the EIS document. I should point out that I am a registered professional engineer in the State of Montana and have been involved in power line design and construction for over 20 years. Comment 447

Under the Regulatory Restrictions Analysis Section S.7 the preparers seem to be more concerned with the potential property rights impact to MATL than the property rights impact to the various US citizens and land owners along the proposed transmission line route. The various agencies should be more concerned with the impact of MATL's activities on the various land owner's property rights. Land owners that I might add vote, unlike MATL which is a Canadian based firm. I would like to point out that MATL's right-of-way agents have been securing "options" at very nominal rates not actively purchasing right-of-way. At least the preliminary documents sent to us were option documents that stated should MATL choose to exercise the option the land owners would be paid their token right-of-way fee. So the impact to MATL's property rights by requiring them to follow the agency prepared route of Alternative 4 would be fairly minimal.

Comment 451
Comment 452
Comment 453

MATL has repeated stated that it has the ability to condemn property using eminent domain in the State of Montana. How does the recent Montana legislature action last summer limiting the use of eminent domain powers for private enterprise affect MATL's ability to exercise eminent domain condemnations?

Comment 561

473

Comment 562

Our family owns 400 acres in the Belgian Hill area near Valier. In Figure 2.6-7 of the EIS, three of the routing options are depicted crossing our property. The Old Belgian Hill reroute, the current Belgian Hill local routing option and the Alt 2 Proposed alignment. The current Belgian Hill local routing option goes right through the middle of our irrigated field longitudinally. If the line was located in this manner it would make our property pretty much impossible to irrigate and would drastically affect the properties value and use as irrigated farmland. We strongly oppose this option and will file a law suite if this option is chose. This route would inflict the maximum harm and damage to our property and would be in direct conflict with statements on page 1-16 pertaining to right-of-ways providing the greatest public benefit and the least private harm. The Old Belgian Hill reroute follows the field line at the edge of our property to the west and the Alt 2 Proposed alignment cuts diagonally across our property then generally parallels the road. By adding a couple guyed 90 degree corner structures or better yet, a couple unguyed self supported structures to MATL's design in this area to eliminate the running angles in the line, the impact to our property could be minimized and crossing the roll irrigated field to the south at a diagonal could be avoided. As our property is presently in CRP and will be returning to crop production shortly, we stongly advocate the use of monopole structures across our property. We would prefer Alternative 4 be selected as it has the minimum impact on our property. It runs across the northern edge.

Comment 563
Comment 564
Comment 565

In reading through the EIS I noticed that the only PE stamp I saw in the document was from an engineer from California. Montana law requires that transmission lines and other utility projects constructed in the state be designed under the responsible charge of a PE licensed in the State of Montana. Subsequently, documents covering the Montana portion of this line should be sealed or stamped by a Montana PE. California PE's are not recognized by the Montana Board of Engineers and it should be noted that California does not follow the NESC.

Comment 456

And finally I would like to further address the minimum line clearance issue. The EIS lists the minimum line to ground clearance design criteria of the line to be 21.2 feet. In Volume 2 of the EIS entitled response to comments, two additional minimum clearance calculations are shown, one by Mr. Wayne Bauer of HDR in Billings, the other by Mr. Dave Marne of Marne Associates of Missoula Montana. Both of these calculations were performed in response to my earlier comments regarding the line being designed with insufficient line to ground clearance to meet the requirements of the NESC. HDR calculated the minimum clearance using NESC rule 232C and MATL and Marne Associates used the alternate method provided under NESC rule 232D, which allows for reduced clearances for circuits with known switching-surge factors. The HDR minimum clearance was 22.6 feet, slightly more than I calculated due to their assuming an elevation of 4,500 feet verses the 3,300 foot elevation assumed by my calculation. The approach used by the MATL consultant resulted in a clearance of 21.8 feet.

Comment 457

Comment 468

For the record, my name is Melisa McRae, and I am the fourth generation of a farm near Dutton. I am also graduating as a bobcat this spring with a biology degree. This is an environmental impact hearing, yet we have spoken very little about the actual environmental effects of these proposed transmission lines. Many of us understand that farming around poles is inconvenient and financially burdensome, but I would like to speak about this in detail. Much of the cost is accrued by the extra chemical and fertilizer used. 134 ft. sprayers are not designed to turn sharply, and going around a pole causes extra spray to be put down. This is a concern for the farmer, because too much chemical or fertilizer can burn the crop and result in production loss. It should also be a concern to everyone, because extra chemical is potentially hazardous to the environment. If we look towards the future, the accumulated effect of fifty years of extra chemical will be even more damaging, and in areas with ground water near the surface, everyone may feel these effects. The best solution would be to keep all poles on field edges. A more realistic solution would be to minimize the number of poles in fields and also make sure the farmer has the financial wherewithal to farm the poles carefully. We are given incentives by the government to help pay for the extra costs of GPS and other systems that make precision spraying possible, lessening the amount of chemical used. Shouldn't we also receive help for the burden of farming around poles?

Comment 469

Comment 470

Comment 471 I know that everyone is very excited about the economic boost these poles may bring, and I hope along with you that more business ventures like this will help keep towns together and schools like the one I graduated from open. But we need to keep in mind that the ones set to profit the most from this transmission line is MATL, and they need to negotiate with landowners to make the burden of their for-profit merchant line

L74

P.O. Box 777
Conrad, MT 59425

Pondera Regional Port Authority

1-406-271-4010
1-406-278-7525
pococo@3rivers.net

March 13, 2008

Dear Sir:

Comment 472

I am again standing in support of the construction of the proposed MATL line. At the Great Falls hearing it was mentioned that the proposed Alternative #4 would be a preferred alternative. I am standing to oppose this selection. The Studies have been completed on the MATL proposal. The Alternative # 4 moves the line significantly away from the already studied area and also makes less sense. The #4 Alternative places the line west of Conrad a greater distance from the proposed wind development and farther from the already existing substations. In consideration of future environmental impacts this is not a good choice. Lines from potential wind development areas and from substations that may eventually connect would be longer and more obstacles would be encountered.

Comment 473

I support the project and urge the DEQ to move this project forward quickly in order that this area may see the benefits in our economy, rather than see another project go away.

Comment 474

Thank you sincerely,

Cheryl Curry

Cheryl Curry
Pondera Regional Port Authority
311 South Main, Suite D
Conrad, MT 59425

406 271-7237
pcpconrad@3rivers.net

Local Economic Development Solutions

L75

9-13-08
Conrad

March 13, 2008

Montana Department of Environmental Quality
Environmental Management Bureau
ATTN: Tom Ring
PO Box 200901
Helena, MT 59620-0901

To whom it may concern:

My name is Wendy Judisch, a resident of the City of Conrad and a member of the Conrad City Council.

I welcome the opportunity for our area to use our natural resources. One of these natural resources is our wind, a great source of renewable energy. A transmission line through our area will not only help encourage the development of wind energy but also help to spread the tax burden throughout our area. The economic boost and its inevitable spin-off will help benefit our area schools, our city, and our county. Comment 479

I encourage you to help the proposed MATL line become a reality as efficiently and expeditiously as possible. The economic pros far outweigh any environmental cons. Comment 480

Sincerely,

Wendy Judisch

Wendy Judisch
616 S. Maryland
Conrad, MT 59425

L77

9-13-08
Conrad

Comment 487 I remember no Electricity no running water no phones not many paved roads. I don't want that again

Comment 488 I remember when REA + Montana Power Came in no one was against that many people who had no Electricity prior to that also got phones or had phones but no Electricity.

We have had boom + bust building and drought and stead but since the advent of Power on demand we have had creature Comforts.

We as an area affected by this Transmission Line may have a feature of steady growth.

With power available we are in a good area we are on a Transportation Corridor with I 15 we would be on a power corridor - with a water project in the works the area is going to be looked at by other Entities

Comment 489 The inconvience of the power poles effect everyone involved with Farming and who ever has to move or build
I my self would not want a pole or structure on my property that would

L83

be inconvient for me but I would not say no if it made sense,

Comment 490 I would hope That The changes made by The powerline would help my children, grandchildren, and others stay in The area so They might have The opportunity To live and work in MT

3-12-08
Cut Bank

Glacier County Regional Port Authority
PO Box 469
Browning, MT 59417
(406) 338-4015

March 12, 2008

Mr. Tom Ring
Montana Department of Environmental Quality
Environemental Management Bureau
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ring, Comment 368

The mission of our regional port authority is to promote, stimulate and advance the general welfare, commerce, economic development and prosperity of our region. Our region is Glacier County, and a majority of our rural county lies within the Blackfeet Reservation. The MATL will have a tremendous economic impact on our region and will assist in potential wind development projects. The MATL will pump needed revenue into the tax base of our region and will assist with our struggling economy. Comment 369

The Glacier County Regional Port Authority supports the Montana Alberta Transmission Line and views it as a means to reach our vision; which is to have a quality rural community with living experiences, opportunities and the amenities of urban living. We are encouraging you to support the line, which has little environmental impact, but large economic benefits. We appreciate the attention you have given our request. Comment 370

Sincerely,

Tony Sitzmann

Tony Sitzmann, Chair
Glacier County Regional Port Authority
PO Box 469
Browning, MT 59417
406 338-4015

L59

Comment 416

3) Our region has one of the best wind power resources in the nation, yet has seen little wind power development because of the lack of transmission capacity. We believe that the way you approve this project should set the standard for future transmission line projects that can allow for the development of this national resource while protecting the rights of property owners.

Comment 686

4) The State of Montana has recognized the importance of projects such as this to the state's economy and the nation's energy supply by creating a one quarter mile wide property tax free zone for property owners along new transmission line routes.

5) Timing of this project is critical to attract investment in wind power development. Comment 687

Thank you for supporting renewable energy development in central Montana.

Brett Doney

President

Great Falls Development Authority

bdoney@gfdevelopment.org

1 (406) 771-9030

Cell 1 (406) 750-2119

Fax 1 (406) 454-2995

P.O. Box 949

Great Falls, MT 59404

Street Address:

300 Central Avenue, Suite 406

Great Falls, MT 59401

4

APPENDIX A:
DEQ LOCAL REALIGNMENT SEGMENTS PRELIMINARY ANALYSIS

Many alternative alignment segments were developed for the preliminary alternative analyses for the March 2007 Document and the Draft EIS (February 2008). Some alternative alignment segments were developed and would apply only to Alternative 2. Likewise, some segments were developed and would apply only to Alternative 4. Some alternative alignment segments could apply to either alternative where Alternative 2 and Alternative 4 are in the same right-of-way. The acreages and mileage values provided in the Appendix A alternative descriptions and tables were accurate and correct for the preliminary analysis but have not been updated for the Final EIS.

Development of Alternative 4 (Possible Agency-Proposed Local Realignments)

During the development of Alternative 4, DEQ considered eight possible local realignments to address specific scoping issues (**Figure A1**). The eight local realignments are presented below as segments A1, A2, B1, B2, C1, C2, D, and E. In assembling Alternative 4 as a whole, DEQ selected segments A1, B2, C1, the north half of D, and E. As discussed in Section 2.5, the DEQ Director may select some of the segments included in Alternative 4 as mitigations to address land use and visual resource issues identified during scoping and in the analysis of Alternative 2. Therefore, all of the segment descriptions are included here for information. DEQ's analysis of these segments, and the information that helped in the selection of segments for Alternative 4, are presented here.

West Great Falls Realignment Segment A1

Alternative segment A1 is an alignment that would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of farm land, where possible. Where Alternative 2 would go directly north out of the Great Falls Substation, segment A1 would take a west-northwesterly path out of Great Falls paralleling the railroad and WAPA 230-kV transmission line, making use of an existing transportation corridor. The segment A1 alignment would head west and then north along the railroad and rejoin Alternative 2 where it leaves 8th Road. Segment A1 is the only segment that would run south and west of Benton Lake National Wildlife Refuge.

Shooting Sports Complex Realignment Segment A2

Approximately 1½ miles north of Great Falls, Alternative 2 would turn directly west for a mile and then run directly north along the west side of the Great Falls Shooting Sports Complex. Segment A2 is a 4.2-mile-long alignment that would continue directly north from Great Falls along the edge of cropland and parallel to the access road on the east side of the Great Falls Shooting Sports Complex. The alignment would parallel the existing 161-kV NWE transmission line between Great Falls and Havre. Segment A2 would rejoin Alternative 2 where it crosses Highway 87. This alignment would minimize crossing of farmland.

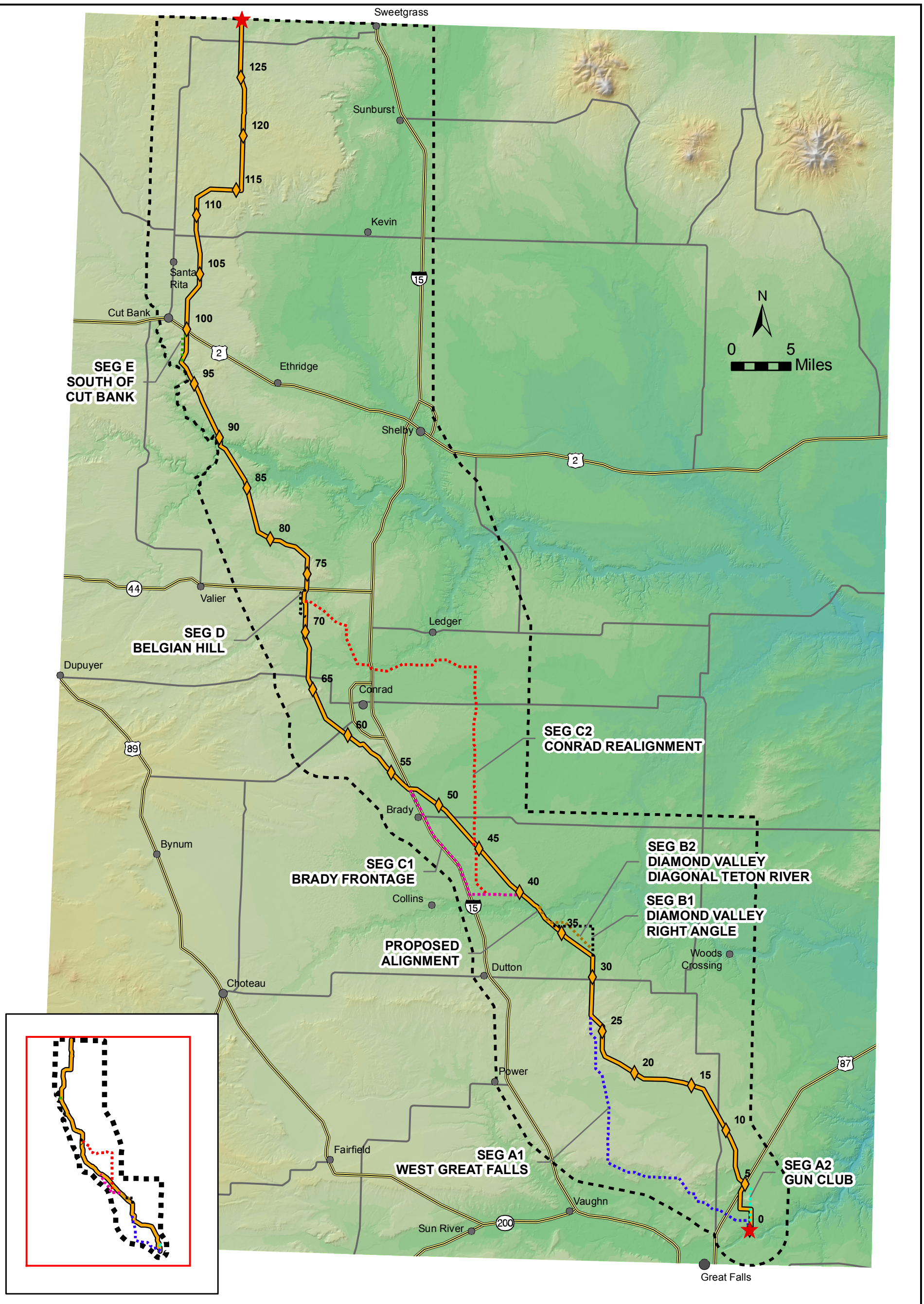


FIGURE A1
AGENCY PROPOSED
LOCAL REALIGNMENT
SEGMENTS

LEGEND

- ALT2 - ALIGNMENT
- ALT2 - MILEPOSTS
- SEGMENT A1 WEST GREAT FALLS
- SEGMENT A2 SHOOTING SPORTS COMPLEX
- SEGMENT B1 DIAMOND VALLEY RIGHT ANGLE
- SEGMENT B2 DIAMOND VALLEY AND TETON RIVER
- SEGMENT C1 BRADY FRONTAGE ROAD
- SEGMENT C2 CONRAD REALIGNMENT
- SEGMENT D BELGIAN HILL
- SEGMENT E SOUTH OF CUT BANK
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

GIS map by Ed Madej -TTEMI-HE FigA1_MATL_ALT4_Agency_Realignments_021607.mxd

Diamond Valley Right Angle Realignment Segment B1

Segment B1 is a 5.9-mile-long alignment addressing the area in Teton county 2 to 5 miles south of the Teton River. In the headwaters of Kinnerely Coulee, segment B1 would run directly north where Alternative 2 turns northwest. After running directly north for approximately 2½ miles, segment B1 would turn directly west running approximately 3 miles until it would rejoin Alternative 2 in the vicinity of Hunt Coulee. This alignment would avoid diagonal crossing of farm land.

Diamond Valley and Teton River Realignment Segment B2

Segment B2 is a 6.5-mile-long alignment that would diverge from Alternative 2 at the same location as segment B1. Where the segment B2 alignment intersects the Alternative 3 alignment and existing NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join Alternative 2 just south of the Teton River. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing. Segment B2 would then cross the Teton River just east of the location described in Alternative 2. Segment B2 would address a landowner concern over opening a new corridor rather than paralleling an existing line which already has disrupted farming practices in some fields.

Brady Frontage Road Realignment Segment C1

Segment C1 is a 15-mile-long realignment that would diverge from Alternative 2 approximately 8 miles southeast of Brady. Segment C1 would run directly west from the Alternative 2 along the northern edge of the Teton River bank to the Interstate 15 frontage road, and follow the frontage road for about 11 miles past the town of Brady to rejoin Alternative 2 about two miles north of Brady. Segment C1 would closely parallel the existing transportation corridor of Interstate 15 and the frontage road. Segment C1 would decrease crossing of farmland and avoid paralleling one pipeline.

Conrad Realignment Segment C2

Segment C2 is a 41-mile-long realignment that would diverge from Alternative 2 at the same location as segment C1. After approximately 3 miles running directly west, segment C2 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it intersects the river. The alignment generally parallels the Dry Fork of the Marias until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn due west for approximately 1 mile before rejoining Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. This segment would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

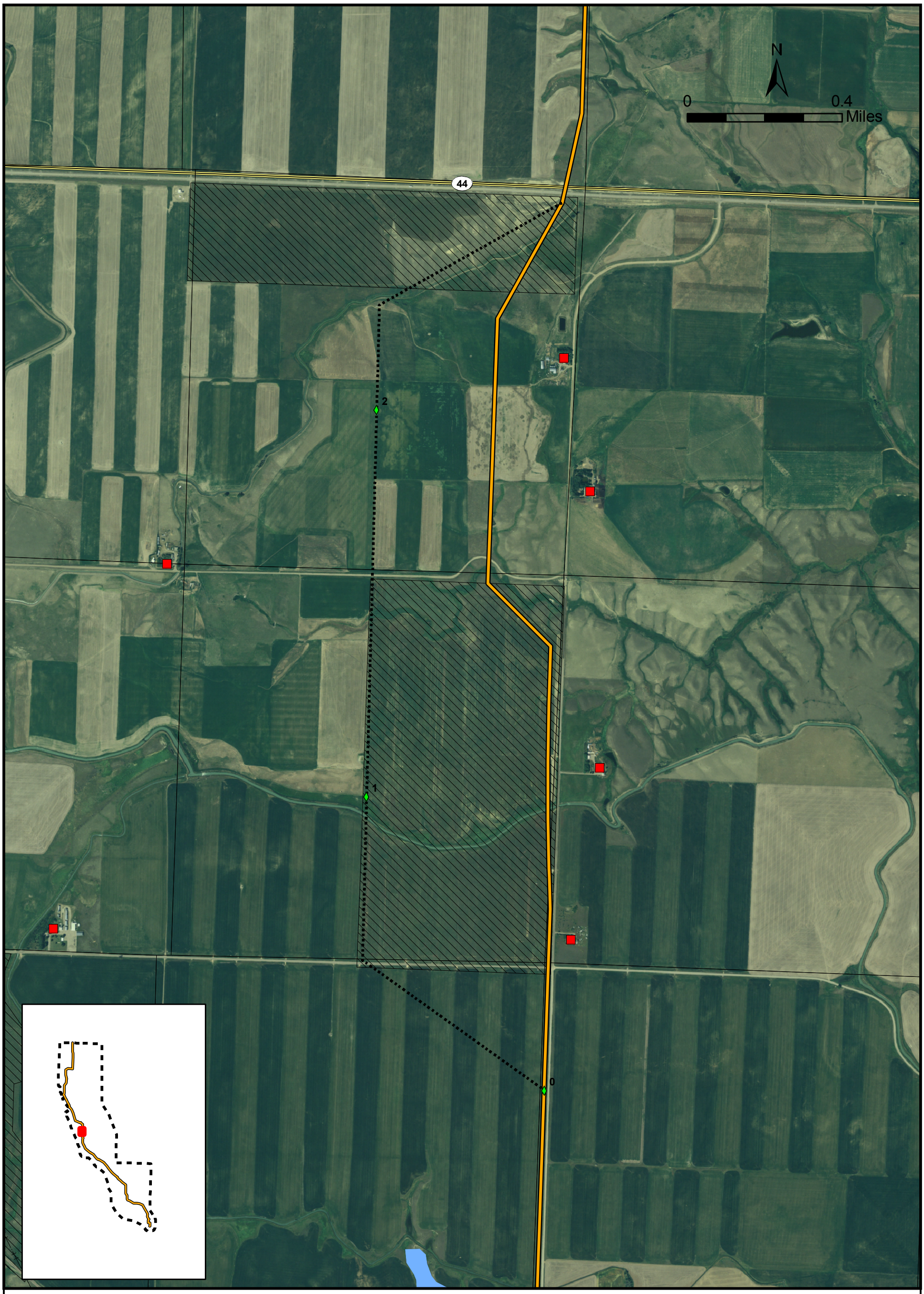


FIGURE A2
SEGMENT D
BELGIAN HILL

LEGEND

- ALT2 - ALIGNMENT
- SEGMENT D BELGIAN HILL
- MILEPOSTS
- RESIDENCES OR FARMSTEADS WITHIN 1 MILE OF ALIGNMENTS

EASEMENTS

- CONSERVATION RESERVE PROGRAM

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- EXISTING TRANSMISSION LINES
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

GIS map by Ed Madej TTEMI-HE FigA2_MATL_Alt4_SegD_021507.mxd

Belgian Hill Realignment Segment D

Segment D is a 2.8-mile-long realignment that would move the alignment slightly west from the Alternative 2 alignment for 2 miles, just north of Belgian Hill, farther away from four residences (**Figure A2**). The alignment would generally parallel Alternative 2. Segment D would result in greater potential for general local acceptance. This segment would reduce visual impacts. Some diagonal crossing of farmland would be required.

South of Cut Bank Realignment Segment E

Segment E is a 2.5-mile-long realignment that would move the alignment approximately ¼ mile west for a 2-mile stretch, just south of the Alternative 2 intersection with Highway 2. Segment E would move the alignment to follow property boundaries better and is located farther away from residential areas and result in greater potential for general local acceptance. Segment E would generally parallel Alternative 2.

Land Use Segment Analysis

Table A1 shows how many miles of cropland and CRP would be crossed by each agency-proposed local realignment segment in comparison to the same segment of Alternative 2.

TABLE A1
AGENCY SEGMENT CROPLAND COMPARISON
TO ALTERNATIVE 2 SEGMENTS

	Linear Miles	Acres in 500-Foot Wide Buffer	Miles Crossing CRP or Cropland
Segment A1 **(West Great Falls)**	**27.3**	1,652	11.7
Alternative 2 Corresponding segment	**26.8**	1,621	17.2
Segment A2 **(Shooting Sports Complex)**	**4.2**	255	2.4
Alternative 2 Corresponding segment	**5.0**	301	2.4
Segment B1 **(Diamond Valley Right Angle)**	**5.9**	357	5.4
Alternative 2 Corresponding segment	**4.2**	256	3.7
Segment B2 **(Diamond Valley & Teton River)**	**6.5**	393	5
Alternative 2 Corresponding segment	**5.9**	358	5.2
Segment C1 **(Brady Frontage)**	**15.0**	904	9.3
Alternative 2 Corresponding segment	**13.3**	804	12.6
Segment C2 **(Conrad Realignment)**	**41.0**	2,481	28.3
Alternative 2 Corresponding segment	**33.0**	1,999	27.5
Segment D **(Belgian Hill)**	**2.8**	170	2.8
Alternative 2 Corresponding segment	**2.4**	73	2.2
Segment E **(South of Cut Bank)**	**2.5**	149	0
Alternative 2 Corresponding segment	**2.3**	140	.7

Notes: Alternative 4 would require the use of monopole on cropland or CRP. The overall Alternative 2 alignment crosses 92.7 miles of cropland and CRP.

Table A2 shows the types of land use crossed by Alternatives 2 and 3, and how many miles of farm land are crossed parallel to farming rows, perpendicular to farming rows, or at a diagonal to farming rows.

TABLE A2
TYPES OF LAND USE CROSSED BY ALTERNATIVES 2 AND 3 (MILES)

	Alternative 2				Alternative 3			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Irrigated cropland	1.4	0	0.1	1.5	0	0	6.8	6.8
Non-irrigated cropland	34.5	3.9	52.8	91.2	27.3	0	63.6	90.9
Rangeland	6.3	1.8	25.5	33.6	5.2	0.2	16.2	21.6
Road/Right of Way	0.2	0.9	0.2	1.3	0.1	0	0.2	0.3
Residential	0	0	0	0	0	0	0.1	0.1
Forest	0	0	0	0	0	0	0.1	0.1
Riparian	0.6	0	1.3	1.9	0.1	0	1.2	1.3
Water	0	0	0	0	0	0	0.1	0.1
Total Miles	43.0	6.6	79.9	129.5	32.7	0.2	88.3	121.2

Notes:

[a] parallel to north and south

[b] perpendicular to north and south

[c] diagonal to north and south

Sources: Orthophotographs 2005 (Montana NRIS 2006a); NRIS 2000; MATL 2006b; field verification; photographic interpretation

The agency-proposed local realignment segments were developed, in part, to reduce the impacts on farming from the proposed transmission line. The numbers of miles of crossings parallel to, perpendicular to, and diagonal to irrigated cropland, non-irrigated cropland, and rangeland are summarized for corresponding segments of Alternative 2 and agency-proposed local realignments (**Table A3**).

TABLE A3
MILES OF PARALLEL, PERPENDICULAR, AND DIAGONAL ACROSS CROPLAND AND RANGELAND ALTERNATIVE 2 AND CORRESPONDING AGENCY LOCAL REALIGNMENT SEGMENT

	Alternative 2				Agency-proposed Local Realignment Segment			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Segment A1 — West Great Falls								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	5.4	1.0	10.8	17.2	6.6	1.6	3.5	11.7
Rangeland/ Native	1.0	1.0	6.5	8.5	1.9	2.7	10.7	15.3
Other	0	0.9		0.9	0.1	--	0.1	0.2
Total Miles	**6.4**	**2.9**	**17.3**	**26.6**	**8.6**	**4.3**	**14.3**	**27.2**
Segment A2 — Great Falls Shooting Sports Complex								
Irrigated	-	-	-	-	-	-	-	-
Non-irrigated	1.7	0.5	0.2	2.4	1.7	0.1	0.6	2.4
Rangeland/ Native	1.1	0.0	0.7	1.8	1.1	--	0.7	1.8
Other	0.0	0.0	0.0	0.0	--	--	--	--
Total Miles	**2.8**	**0.5**	**0.9**	**4.2**	**2.8**	**0.1**	**1.3**	**4.2**
Segment B1 — Diamond Valley Right Angle								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	--	--	3.7	3.7	2.5	2.9	--	5.4
Rangeland/ Native	--	--	0.3	0.3	--	0.4	--	0.4
Other	--	--	--	--	--	0.1	--	0.1
Total Miles	**--**	**--**	**4.0**	**4.0**	**2.5**	**3.4**	**--**	**5.9**
Segment B2 — Diamond Valley Diagonal-Teton River								
Irrigated	0.0	0.0	0.0	0.0	-	-	-	-
Non-irrigated	0.0	0.0	5.2	5.2	0.5	0.8	3.7	5.0
Rangeland/ Native	0.0	0.0	0.8	0.8	0.2	0.5	0.7	1.4
Other	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1
Total Miles	**0.0**	**0.0**	**6.2**	**6.2**	**0.7**	**1.3**	**4.5**	**6.5**
Segment C1 — Brady Frontage								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	--	0.5	12.1	12.6	--	3.8	5.5	9.3
Rangeland/ Native	--	0.1	0.6	0.7	--	0.8	0.0	0.8
Other	--	--	0.2	0.1	--	--	4.9	4.9
Total Miles	**--**	**0.6**	**12.9**	**13.4**	**--**	**4.6**	**10.4**	**15.0**

TABLE A3
MILES OF PARALLEL, PERPENDICULAR, AND DIAGONAL ACROSS CROPLAND AND RANGELAND ALTERNATIVE 2 AND CORRESPONDING AGENCY LOCAL REALIGNMENT SEGMENT

	Alternative 2				Agency-proposed Local Realignment Segment			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Segment C2 — Conrad Realignment								
Irrigated	0.9	--	0.0	0.9	1.2	0.5	-	1.7
Non-irrigated	3.3	--	23.2	26.6	14.8	6.5	5.3	26.6
Rangeland/ Native	0.6	--	3.9	4.5	1.1	1.2	9.8	12.1
Other	0.1	--	0.9	0.9	0.2	-	0.4	0.6
Total Miles	**4.9**	**0.0**	**28.0**	**32.9**	**17.3**	**8.2**	**15.5**	**41.0**
Segment D — Belgian Hill								
Irrigated	0.4	--	--	0.4	--	--	--	--
Non-irrigated	1.0	--	0.6	1.6	2.8	--	--	2.8
Rangeland/ Native	0.2	--	0.1	0.1	--	--	--	--
Other	0.1	--	--	0.1	--	--	--	--
Total Miles	**1.7**	**0**	**0.7**	**2.4**	**--**	**--**	**--**	**2.8**
Segment E — South of Cut Bank								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	0.7	--	--	0.7	--	--	0	--
Rangeland/ Native	0.8	--	0.8	0.8	2.4	--	--	2.4
Other	--	--	--	0	--	--	--	--
Total Miles	**1.5**	**0**	**0.8**	**1.5**	**--**	**--**	**--**	**2.4**

Notes:

[a] parallel to north and south

[b] perpendicular to north and south

[c] diagonal to north and south

-- Not applicable

Sources: Orthophotographs 2005 (Montana NRIS 2006a); MATL 2006b; field verification; photographic interpretation .

The following observations were made:

- Segment A1 (West Great Falls) is 0.6 miles longer than the segment it would replace in Alternative 2, however, it reduces the diagonal crossing of cropland from 10.8 miles to 3.5 miles.
- Segment A2 (Great Falls Shooting Sports Complex) increases the diagonal crossing of non-irrigated cropland from 0.2 in Alternative 2 to 0.6 miles in Alternative 4.
- Segment B1 (Diamond Valley Right Angle) is 1.9 miles longer than the segment it would replace in Alternative 2, however, it eliminates diagonal crossing of cropland, compared to 3.7 miles of diagonal crossing in Alternative 2 for this segment and moves the transmission line alignment onto existing utility corridors or other land uses (non-farm).
- Segment B2 (Diamond Valley Diagonal - Teton River) is 0.3 miles longer than the segment of Alternative 2 it would replace, but it reduces the diagonal crossing of cropland from 5.2 miles to 3.7 and shifts the crossing to parallel (0.5 miles) or perpendicular (0.8 miles).
- Segment C1 (Brady Frontage) is 1.6 miles longer than the segment it would replace in Alternative 2. It would reduce the diagonal crossing of cropland from 12.1 miles to 5.5 miles.
- Segment C2 (Conrad Realignment) is nearly 8 miles longer than the segment of Alternative 2 it would replace (41 miles compared to 32.9 miles), however, it would substantially reduce the diagonal crossing of cropland from 23.2 miles to 5.3 miles. Most (14.8 miles) of the cropland crossed would be parallel to the north-south orientation of crop rows. Approximately 6.5 miles would be crossed perpendicular to the rows. Additionally, more of the alignment (12.1 miles) would cross native vegetation or rangeland, compared to Alternative 2 which has 4.5 miles crossing those vegetation types.
- Segment D (Belgian Hill) is 0.4 miles longer than the segment it would replace in Alternative 2, however, it would remove all the diagonal crossing of cropland in this segment and increase the distance of parallel crossing from 1.4 miles to 2.8 miles. The parallel crossings or alignment near the edges of the fields would not interfere with farming activities as much as diagonal crossings.
- Segment E (South of Cut Bank) is 0.9 miles longer than the segment it would replace in Alternative 2, however, it would remove all crossings of cropland (including diagonal) and move the alignment onto native or rangeland vegetation.

Table A4 compares how many miles of transmission line cross CRP land or cropland under each agency-proposed local realignment segment and how many acres would be affected. Segments B1, C2, and D would result in a slight increase in acres removed from production because of the longer length of the line under these segments (see **Table A4)**.

TABLE A4
Acres of Production in CRP or Cropland Affected by Monopole Structures in Agency-proposed Local Realignments Compared to Alternative 2

	Alternative 2		Agency-proposed Local Realignment	
Segment	**Miles**	**Acres[a]**	**Miles**	**Acres[a]**
A1 West Great Falls	17.2	1.8	11.7	1.2
A2 Great Falls Shooting Sports Complex	2.4	0.3	2.4	0.3
B1 Diamond Valley Right Angle	3.7	0.4	5.4	0.6
B2 Diamond Valley Diagonal-Teton River	5.2	0.5	5.0	0.5
C1 Brady Frontage	12.6	1.3	9.3	1.0
C2 Conrad Realignment	27.5	2.8	28.3	3.0
D Belgian Hill	2.0	0.2	2.8	0.3
E South of Cut Bank	0.7	0.1	0.0	0.0

Notes:

[a] Acres rounded to nearest 0.01. Calculation based on 0.01 acres per structure at a structure every 500 feet (10.5 structures per mile)

Sources: Orthophotographs, 2005 (Montana NRIS 2006a), NRIS 2000, MATL 2006b; field verification; photographic interpretation

Some segments (B1 - Diamond Valley Right Angle, C1 – Conrad Realignment and D - Belgian Hill) increase the length of power line crossing farmland and CRP slightly (see **Table A4**) over Alternative 2 for those segments.

Conservation Easements and Special Management Areas

Linear miles of lands under federal/state special management and those lands currently under federal or state conservation easements (wetland easements, CRP, and FWP easements) are summarized in **Table A5** for each alignment. Segments A1 and A2 would eliminate crossing the Great Falls Shooting Sports Complex. Some agency-proposed local realignments would increase the number of miles crossing CRP over corresponding Alternative 2 segments they would replace.

TABLE A5 MILES OF FEDERAL/STATE SPECIAL MANAGEMENT AREAS AND CONSERVATION EASEMENTS CROSSED			
	Alternative 2 Corresponding Segment	**Alternative 3**	**Agency-proposed Local Realignments**
State Land (FWP) – Great Falls Shooting Sports Complex			
Segment A1 (West Great Falls)	0.73	--	0
Segment A2 (Great Falls Shooting Sports Complex)	0	0.51	0.76
Segment B1 (Diamond Valley Right Angle)	--	--	--
Segment B2 (Diamond Valley Diagonal-Teton River)	--	--	--
Segment C1 (Brady Frontage)	--	--	--
Segment C2 (Conrad Realignment)	--	--	--
Segment D (Belgian Hill)	--	--	--
Segment E (South of Cut Bank)	--	--	--
Montana State Trust Land (DNRC)			
Segment A1 (West Great Falls)	3.69	--	2.56
Segment A2 (Great Falls Shooting Sports Complex)	0.12	--	0.08
Segment B1 (Diamond Valley Right Angle)	0.00	--	0.00
Segment B2 (Diamond Valley Diagonal-Teton River)	1.24	--	1.24
Segment C1 (Brady Frontage)	1.14	--	2.68
Segment C2 (Conrad Realignment)	1.70	--	4.03
Segment D (Belgian Hill)	0.00	--	0.00
Segment E (South of Cut Bank)	0.00	--	0.00
Conservation Easements			
Segment A1 (West Great Falls)	(CRP) 5.32 (Stewardship) 0.12	--	10.04
Segment A2 (Great Falls Shooting Sports Complex)	0.00	--	0.00
Segment B1 (Diamond Valley Right Angle)	0.00	--	0.00
Segment B2 (Diamond Valley Diagonal-Teton River)	1.54	--	1.54
Segment C1 (Brady Frontage)	0.00	--	3.10
Segment C2 (Conrad Realignment)	2.16	--	4.17
Segment D (Belgian Hill)	1.36	--	1.48
Segment E (South of Cut Bank)	1.04	--	0.90

Notes:
-- = not applicable

Planned Land Use

The Segment A1 West Great Falls local alignment crosses the planned Kyles Addition subdivision. No residences are under construction or completed in this subdivision.

Wetlands Segment Analysis

The length of each segment and the wetlands affected by each segment are shown in **Table A6**, along with the length of the corresponding segment of Alternative 2 which it could replace.

TABLE A6
WETLANDS AFFECTED BY SEGMENTS
AGENCY-PROPOSED LOCAL REALIGNMENT

Alternative Comparison	Segment Length	Palustrine PEM	Palustrine PUS, PUB, & PAB	Lacustrine	Riverine	Total
	(miles)	(acres)	(acres)	(acres)	(acres)	(acres)
West Great Falls Segment A1	27.3	13.25	0.43	0.0	0.0	13.68
Corr. Alt. 2 Segment	26.8	15.72	1.07	0.78	0.0	17.57
Great Falls Shooting Sports Complex Segment A2	4.2	0.0	0.13	3.21	0.0	3.34
Corr. Alt. 2 Segment	5.0	4.13	0.0	0.78	0.0	4.91
Diamond Valley Right Angle Segment B1	5.9	<1 Est.	ND	ND	<1 Est.	ND
Corr. Alt. 2 Segment	4.2	<1 Est.	ND	ND	<1 Est.	ND
Diamond Valley Diagonal-Teton River Segment B2	6.5	1-2	ND	ND	2-3	ND
Corr. Alt. 2 Segment	5.9	1-2	ND	ND	2-3	ND
Brady Frontage Segment C1	15.0	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	13.3	10.12	1.98	0.0	0.0	12.10
Conrad Realignment Segment C2	41.0	18.10	2.01	0.0	0.0	20.11
Corr. Alt. 2 Segment	33.0	13.75	1.98	0.0	0.0	15.73
Belgian Hill Segment D	2.8	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	2.4	0.0	0.41	0.0	0.0	0.41
South of Cut Bank Segment E	2.5	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	2.3	0.0	0.0	0.0	0.0	0.0

Notes:

Alt. Alternative
Corr. Corresponding
PEM Palustrine Emergent wetlands
PUS Palustrine Unconsolidated Shore wetlands
PUB Palustrine Unconsolidated Bottom wetlands
PAB Palustrine Aquatic Bed wetlands
Est. estimated using the 2005 aerial photographs
ND No Data

Potential impacts to wetlands for all eight local realignment segments were evaluated using the wetland data provided in **Table A6**. Total potential wetlands recorded along each local realignment segment were compared to the total wetlands recorded for the corresponding segment of Alternative 2. The total wetland acres was also segregated into four main wetland categories (2 palustrine classes, 1 lacustrine, and 1 riverine) to better evaluate the types of wetlands that each segment may impact. Total wetland acreage does not include any wetlands that may exist in Teton County for the portion of the segments where no official wetland data currently exist. The 2005 National Agricultural Imagery Program aerial photographs were used to visually identify observable wetlands along the local realignment segments in Teton County and to estimate the approximate number of wetlands for these alignments. Even though the wetland acreage could not be quantified from the aerial photographs, it was determined that no single large wetland or concentration of wetlands existed that could not be spanned using 500 foot span lengths.

Potential impacts to wetlands for the local realignment segments were compared only to the corresponding segments of Alternative 2 for which each could substitute. As was determined for the entire analysis area, the majority of the wetlands along all local realignment segments are classified as palustrine, emergent wetlands (PEM).

Segment A1 (West Great Falls) The A1 segment traverses around the southern and western sides of Benton Lake NWR area and would potentially impact 3.89 fewer acres of wetlands, compared to the corresponding segment of Alternative 2. Several smaller areas with palustrine and lacustrine wetlands exist directly north of Great Falls (Black Horse Lake area) and along the western side of Benton Lake NWR. A1 would impact fewer wetlands primarily because it is located along steeper slopes compared to crossing a more flat bench area. No riverine wetlands are delineated along segment A1 facility location. However, segment A1 crosses the Lake Creek channel in Teton County and could potentially impact a small riverine wetland (possibly about 1 acre) at that location.

Segment A2 (Great Falls Shooting Sports Complex Realignment) This 4.2 mile long segment runs north from the Great Falls 230-kV switch yard along the edge of cropland and parallel to the access road to the Great Falls Shooting Sports Complex. The Segment A2 centerline crosses over an actively used gun club, but would not be located over any existing or planned buildings. The segment A2 facility location would potentially impact 1.57 fewer acres of wetlands compared to the corresponding segment of Alternative 2. The primary difference between these two alignments was that the segment A2 realignment would cross a larger portion of the Black Horse Lake Flat that has been mapped as a lacustrine wetland.

Segment B1 (**Diamond Valley Right Angle)** This 5.9 mile long B1 segment is located in Diamond Valley area of Teton County, approximately 2 to 5 miles south of the Teton River. The types and amounts of wetlands that would be impacted within the 500 foot wide facility location of segment B1 are very similar to those that occur along the 4.2 mile long corresponding Alternative 2 portion. Both segment B1 and the corresponding Alternative 2 centerlines would cross Hunt Coulee; segment B1 would cross this coulee at a straight east to west angle, while the Alternative 2 would cross Hunt Coulee at a southeast to northwest angle. Hunt Coulee has palustrine emergent wetlands (estimated to be less than one acre) and a small area of riverine wetlands (estimated to be less than one acre) in the bottom of the coulee. These wetland areas could be spanned causing minimal impacts to wetlands under both the B1 segment and Alternative 2 alignments.

Segment B2 (Diamond Valley and Teton River) This 6.5 mile long segment B2 is also located in the Diamond Valley area of Teton County, but would utilize the same alignment as Alternative 3 for approximately 3.25 miles where it would parallel the existing NWE 115-kV transmission line. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing of Hunt Coulee. This alignment would also extend further north and includes a modified crossing of the Teton River that avoids some cropland. The types and amounts of wetlands that would be impacted within the 500 foot wide facility location for segment B2 are very similar to those that occur along the 5.9 mile long corresponding Alternative 2 portion. Both alternative alignments would cross small areas with palustrine emergent wetlands (estimated at one to two acres) and a small area of riverine wetlands (estimated at two to three acres) in the bottom of Hunt Coulee and the Teton River. All wetland areas visually identified on the 2005 aerial photographs for segment B2 could be spanned.

Segment C1 (Brady Frontage Road) Segment C1 is a 15.0 mile long alignment that runs directly east - west along the northern edge of the Teton River bank and then parallels the Interstate 15 frontage road for approximately 11 miles, connecting back with the Alternative 2 alignment just north of Brady, Montana. Segment C1 would potentially impact 12.1 fewer acres of wetlands compared to the Alternative 2 alignment through this area. There are no wetlands of any type mapped along the Brady Frontage Road alignment. Several areas with palustrine wetlands (total of 12.1 acres) exist along the corresponding segment of Alternative 2 through this area.

Segment C2 (Conrad Realignment) Segment C2 is a 41.0 mile long alignment that runs around the Town of Conrad on the east and north sides. Segment C2 takes off from Alternative 2 at the same location as segment C1. Both Alternative C1 and C2 segments would be in the same alignment for approximately 3.25 miles where segment C2 would begin to run north. This alternative alignment would travel north for approximately 20 miles where it would turn west and continue for approximately 18 miles where it

would rejoin Alternative 2. This alternative alignment would cross several major coulees (South Pondera, Pondera, Favot, and Big Flat) and the Dry Fork Marias River.

Segment C2 would potentially impact 4.38 more acres of total wetlands compared to the corresponding Alternative 2 alignment through this area. The main reason for the increased number of wetlands crossed by segment C2 is the higher proportion of coulees and unfarmed drainages that were used by this alternative in the avoidance of farmed land. Small areas with palustrine and riverine wetlands exist along most of the major coulees and along the Dry Fork Marias River crossing. Segment C2 also crosses slightly larger and more defined drainages due to its more eastern location. Drainages generally flow west to east in this area and tend to have more defined channels as they flow toward the Missouri River.

Segment D (Belgian Hill) Segment D is a relatively short (2.8 mile) alignment located in the Belgian Hill area. This alternative segment generally parallels Alternative 2, but is located approximately ½ mile to the west. This alignment segment was developed primarily to minimize visual impacts to four residences located along the Alternative 2 alignment. Segment D would potentially impact 0.41 fewer acres of palustrine wetlands compared to Alternative 2 through this locale.

Segment E (South of Cut Bank) Segment E is a relatively short (2.5 mile) segment located in an area southeast of Cut Bank. This alternative segment also parallels the Alternative 2 alignment approximately ½ mile to the west. This alignment segment was developed primarily to minimize visual impacts to residences located along the Alternative 2 alignment and to avoid paralleling a buried gathering pipeline for the oil wells in the local area. There are no mapped wetlands along either segment E or the corresponding Alternative 2 alignment in this locale.

Vegetation Segment Analysis

Rangeland vegetation, such as grassland, improved pasture, seeded grasslands, shrubland, badland, riparian and wetlands, and forested cover types, would be removed by the construction of access roads and structures, and at construction staging areas. Maintenance activities would not likely result in additional ground disturbance. Linear miles of rangeland cover types affected by alternative are presented in **Table A7**. Disturbance resulting from staging areas would be similar for Alternatives 2 and 3.

Agency-proposed local realignment segments total approximately 38.5 miles. The comparable segments of Alternative 2 total almost 20 miles (**Table A8**), nearly doubling the grassland the rangeland cover types under alternative segments. The increased crossing in rangeland cover types would result in more tower structures and access roads, thus increasing rangeland impacts. Disturbance due to maintenance activities would also increase over the life of the project due to increased structure and road

placement in rangeland and vegetation (**Table A9**). Disturbance resulting from staging areas would be similar to those of Alternatives 2 and 3.

TABLE A7
Native Vegetation Cover Types Crossed by Alternatives 2, 3, and 4

Rangeland Cover Types	Alternative 2		Alternative 3		Agency-proposed Local Realignments	
	Miles	Total Land Cover (percent)	Miles	Total Land Cover (percent)	Miles	Total Land Cover (percent)[a]
Grassland/ Shrubland	33.6	25.9	21.6	17.8	A1 = 15.3 A2 = 1.8 B1 = 0.4 B2 = 1.3 C1 = 0.8 C2 = 12.0 D = 2.8 E = 2.5	A1 = 56.2 A2 = 42.2 B1 = 7.3 B2 = 19.9 C1 = 5.2 C2 = 29.1 D = 99.0 E = 100.0
Riparian	1.9	1.5	1.3	1.1	A1 = 0.2 A2 = 0.03 B1 = 0.1 B2 = 0.2 C1 = 0.05 C2 = 1.0 D = 0.04 E = 0.0	A1 = 0.7 A2 = 0.7 B1 = 2.2 B2 = 2.8 C1 = 0.3 C2 = 2.3 D = 0.01 E = 0.0
Forest (Cottonwood)	0.0	0.0	0.1	0.1	B2 = 0.04[b]	B2 = 0.6
Total	35.5	27.4	23.0	19.0	--	--
Total Line Length	129.9	--	121.6	--	--	--

Notes:
a Percent of segment..
b Found only in segment B_2
Source: Orthophotographs 2005 (Montana NRIS 2006a) analysis of land cover in vegetation analysis area, October 2006.
-- not applicable

TABLE A8 LINEAR MILES OF VEGETATION CHANGE BETWEEN ALTERNATIVE 2 AND AGENCY-PROPOSED LOCAL REALIGNMENTS		
Native Vegetation Cover Types	**Alternative 2 (miles)**	**Agency-proposed Local Realignments (miles)**
Rangeland	A1 = 8.5 A2 = 1.8 B1 = 0.3 B2 = 0.8 C1 = 0.6 C2 = 4.5 D = 0.3 E = 1.6	A1 = 15.3 A2 = 1.8 B1 = 0.4 B2 = 1.3 C1 = 0.8 C2 = 12.0 D = 2.8 E = 2.5
Riparian	A1 = 0.0 A2 = 0.0 B1 = 0.2 B2 = 0.2 C1 = 0.1 C2 = 0.8 D = 0.1 E = 0.0	A1 = 0.2 A2 = 0.03 B1 = 0.1 B2 = 0.2 C1 = 0.05 C2 = 1.0 D = 0.04 E = 0..0
Forest (Cottonwood)	No Data	B2 = 0.4 [a]

Note:
a Found only in segment B_2
Source: Orthophotographs 2005 (Montana NRIS 2006a) of land cover in vegetation analysis area, October 2006

TABLE A9 [d] ESTIMATED ACRES OF DISTURBANCE DUE TO H-FRAME STRUCTURES IN RANGELAND VEGETATION						
Rangeland Cover Types	**Alternative 2**			**Agency-proposed Local Realignments**		
	Miles[a]	Number of Structures[b]	Acres[c]	Miles	Number of Structures	Acres
Grassland/ Shrubland	18.4	121	0.1	36.9	244	0.2
Riparian	1.4	9	<0.01	1.6	11	<0.01
Total	19.8	130	0.1	38.5	255	0.2

Notes:
a Segment total.
b Average 800-foot span between H-frame structures.
c Based on 36 square feet occupied by an H-frame structure.
[d] New values were updated in 2008 but have not been incorporated into this table.

Riparian Vegetation
The effects to riparian vegetation from the agency-proposed local realignments would be similar to those of Alternative 2 because both alternatives cross similar amounts of riparian habitat (**Table A9**).

Species of Concern
The effects on species of concern from agency-proposed local realignments would be the same as Alternative 2 because both alternatives cross similar amounts of riparian habitat where these species are likely to occur (**Table A10**).

Weed Control
The agency-proposed local realignments would cross more native vegetation than Alternative 2 (**Table A8**). This increase in land area potentially exposed to disturbance and noxious weed invasion would require greater diligence, expense, and coordination to successfully implement a noxious weed control plan (**Table A9**). The MATL Noxious Weed and Invasive Plant Control Plan (**Appendix C**) would adequately reduce the increased risk of noxious weed spread in the analysis area.

Wildlife Segment Analysis

Big Game Species
Impacts on big game species would not be expected. Pronghorn and mule deer does with fawns could be displaced by activities during late spring and early summer, but disturbance within a given portion of the line would be temporary and animals could easily use adjacent habitat during disturbance periods. Activities would not disturb wintering animals as the construction activities would occur during the spring and summer months. The proposed and alternative transmission line alignments would cross through mule deer winter range and there would be some permanent loss of habitat as a result of structures and access roads (see **Table A10).** This habitat loss would not impact mule deer as this is a minor loss relative to the amount of available habitat within the region.

TABLE A10 MULE DEER WINTER RANGE IMPACTED BY ALTERNATIVES				
MULE DEER WINTER RANGE	Alternative			
	2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Miles of Mule Deer Winter Range Bisected by Transmission Line	Alternative 2 Segment A 19	20	A1 = 1.8 A2 = 1.8 B1 = 0 B2 = 1.0 C1 = 0.67 C2 = 9.3 D = 0 E = 0	A1 = 4.2 A2 = 1.8 B1 = 0.9 B2 = 3.0 C1 = 4.8 C2 = 8.8 D = 0 E = 0

Notes:
a Segment of the Alternative 2 alignment that corresponds with the agency-proposed local realignment segment.
b Agency-proposed local realignment segments that correspond to the Alternative 2 segments.

Threatened and Endangered Segment Analysis

The alternative alignments traverse the known habitat range of four Species of Concern and one federally threatened species. **Table A11** lists the linear miles of special status species' habitat range along each of the two action alternatives and local realignments.

TABLE A11 LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE AND AGENCY-PROPOSED LOCAL REALIGNMENTS					
Common Name	**State Rank**	**Alternative**			
		2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Black-crowned night-heron	S3B	11.2	9.1	A1 = 11.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 2.6 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Black-necked stilt	S3, S4B	11.2	9.1	A1 = 11.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 2.6 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0

TABLE A11
LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE AND AGENCY-PROPOSED LOCAL REALIGNMENTS

Common Name	State Rank	Alternative			
		2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Burrowing owl	S2B	4.2	3.9	A1 = 4.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Ferruginous hawk	S2B	6.5	0	A1 = 6.5 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 5.8 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Peregrine falcon	S2B	2.5	2.2	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Total for All species	--	19.9	11.3	A1 = 17.7 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 8.4 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0

Notes:

Source: MTNHP. 2005. GIS Analyses of Element Occurrence Data. Montana Natural Heritage Program, Helena, Montana. Available at: **http://nhp.nris.state.mt.us/mbd**

State: S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range; B = a state rank modifier indicating breeding status for a migratory species; S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations; S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery; S1 = critically imperiled because of extreme rarity, or because of some factor of its biology making it especially vulnerable to extirpation; SH = Historical, known only from records over 50 years ago; may be rediscovered; N = non-breeding.

a Segment of the Alternative 2 alignment that corresponds with the agency-proposed local realignment segment.
b Agency-proposed local realignment segments that correspond to the Alternative 2 segments.

TABLE A12 [c]
TAX BENEFIT ESTIMATES FOR ALTERNATIVES AND SEGMENTS

	Alignment Length (Miles)	Value $/Mi.	Estimated Value in County (BxC)	Class 9 Tax Rate (Valuation Ratio): 12%	Taxable Value (DxE)	Avg. Rural Mill Levy	Property Tax (FxG)
Cascade							
Alternative 2	12.76	$363,284	$4,635,504	0.12	$556,260	0.50412	$280,422
Alternative 3	12.31	$363,284	$4,472,026	0.12	$536,643	0.50412	$270,533
Alternative 4							
Segment A1 - Alt 2	12.75	$363,284	$4,631,871	0.12	$555,825	0.50412	$280,202
Segment A1 - Alt 4	19.8	$363,284	$7,193,023	0.12	$863,163	0.50412	$435,138
Chouteau							
Alternative 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Alternative 3	10.21	$363,284	$3,709,130	0.12	$445,096	0.43959	$195,660
Alternative 4							
Segment A1 - Alt 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Segment A1 - Alt 4	0	$363,284	$0	0.12	$0	0.43959	$0
Glacier							
Alternative 2	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Alternative 3	37.34	$363,284	$13,565,025	0.12	$1,627,803	0.53745	$874,863
Alternative 4	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Pondera							
Alternative 2	45.69	$363,284	$16,598,446	0.12	$1,991,814	0.52162	$1,038,970
Alternative 3	44.44	$363,284	$16,144,341	0.12	$1,937,321	0.52162	$1,010,545
Alternative 4							
Segment C1 - Alt 2	4.11	$363,284	$1,493,097	0.12	$179,172	0.52162	$93,460
Segment C1 - Alt 4	7.12	$363,284	$2,586,582	0.12	$310,390	0.52162	$161,906
Segment C2 - Alt 2	28.86	$363,284	$10,484,376	0.12	$1,258,125	0.52162	$656,263
Segment C2 - Alt 4	34.66	$363,284	$12,591,423	0.12	$1,510,971	0.52162	$788,153

TABLE A12 [c]
TAX BENEFIT ESTIMATES FOR ALTERNATIVES AND SEGMENTS

	Alignment Length (Miles)	Value $/Mi.	Estimated Value in County (BxC)	Class 9 Tax Rate (Valuation Ratio): 12%	Taxable Value (DxE)	Avg. Rural Mill Levy	Property Tax (FxG)
Teton							
Alternative 2	25.16	$363,284	$9,140,225	0.12	$1,096,827	0.4991	$547,426
Alternative 3	17.32	$363,284	$6,292,079	0.12	$755,049	0.4991	$376,845
Alternative 4							
Segment A1 - Alt 2	8.13	$363,284	$2,953,499	0.12	$354,420	0.4991	$176,891
Segment A1 - Alt 4	7.47	$363,284	$2,713,731	0.12	$325,648	0.4991	$162,531
Segment C1 - Alt 2	4.12	$363,284	$1,496,730	0.12	$179,608	0.4991	$89,642
Segment C1 - Alt 4	7.89	$363,284	$2,866,311	0.12	$343,957	0.4991	$171,669
Segment C2 - Alt 2	4.12	$363,284	$1,496,730	0.12	$179,608	0.4991	$89,642
Segment C2 - Alt 4	6.29	$363,284	$2,285,056	0.12	$274,207	0.4991	$136,857
Notes:							
Sources: Mullen 2006							
Montana Department of Revenue 2004							

Notes:
a Mullen 2006
b Montana Department of Revenue 2004
c. New values were updated in 2008 but have not been incorporated into this table.

$/Mi. = dollars per mile

Socioeconomics Segment Analysis

The socioeconomic impacts described above are essentially equal for all of the alternatives and segments with the exception of differences in the estimated property tax revenue available to each affected county depending on the mileage of the line that would ultimately be constructed within each county's jurisdiction (**Table A12**).

Cultural Resources Segment Analysis

The Class 1 cultural resource searches resulted in the identification of three previously recorded sites considered eligible for the NRHP in sections along the agency-proposed local realignment segments. These sites include the Rainbow Dam Road, an historic transmission line, and the Burlington Northern-Santa Fe Railroad. There are 20 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes six tipi ring sites, two lithic scatter sites, two prehistoric camp sites, an historic road or trail, five homesteads, two historic irrigation systems, one historic trash dump, and one historic mining site.

Two NRHP-eligible sites, 24CA416 the Rainbow Dam Road and 24CA1040 an historic transmission line just north of the Missouri River, are located in sections containing both segment A1 and segment A2. The sections crossed by segment A1 contains three of the tipi ring sites, the two lithic scatter sites, the two prehistoric camp sites, three of the homesteads, and the historic mining site in the category of undetermined, unknown, or unresolved NRHP eligibility.

There are no previously recorded cultural resource sites in sections along either segment B1 or segment B2.

One section along segment C1 contains one tipi ring site of undetermined NRHP eligibility. Several sections along segment C2 contain two of the tipi ring sites, two of the homesteads, one of the historic irrigation systems, and the one historic trash dump in the category of undetermined, unknown, or unresolved NRHP eligibility.

Two sections along segment D contain the historic road or trail and one of the historic irrigation systems both of undetermined NRHP eligibility. Two sections along segment E contain the NRHP-eligible Site 24GL191, the Great Northern Railroad – now part of the Burlington Northern-Santa Fe.

Visuals Segment Analysis

Alternative 4 was developed by comparing eight segments that originated and ended at various locations off of Alternative 2 (**Table A13**). Compared to the corresponding segment from Alternative 2, there are fewer residences in the immediate foreground and foreground (0 to ¼ mile and ¼ to ½ mile) of segments A1, A2, B1, B2, C2, and D compared to the corresponding Alternative 2 segments. The differences are all fewer than 5 residences, except A1 (A1 = 13 and corresponding Alternative 2 A1 = 28). Segment E and the corresponding Alternative 2 segment are the same. Segment C1 has a considerably more residences than the corresponding Alternative 2 segment (C1 = 66 versus corresponding Alternative 2 = 0).

Travel corridor comparison (½ to 1 mile) shows that segments A1, A2, and D have a shorter lineal mileage from the major travel routes in the area than do the corresponding Alternative 2 segments. Segment A1 is approximately 3 miles shorter than its corresponding Alternative 2 segment and the other segments are within 1.5 lineal miles of their corresponding Alternative 2 segments. Segment C1 has a considerable amount more lineal mileage within ½ to 1 mile than the corresponding Alternative 2 segment (C1 = 12.38 miles versus corresponding Alternative 2 C1 = 4.83 miles).

All recreation sites were not compared, but those that were are similar in visual impacts.

In summary, segment A1 has less of a visual impact than the corresponding Alternative 2 segment. The corresponding Alternative 2 segment C1 has considerably smaller visual impact than the segment C1. Transmission line alignments in segments D and E were located in consultation with local residents to reduce visual impacts.

TABLE A13
Comparison of Visual Impacts
Alternative 2, 3, and 4 Segments

Alternative	Segment	Number of Residences (Points)			Recreation – Benton Lake (Miles)	Recreation – State Lands[a] (Miles)	Recreation – Lewis & Clark Trail (Lineal Mileage)			Travel Corridor[b] (Lineal Mileage)
		0 to ¼	¼ to ½	½ to 1	Within One Mile	Miles Crossed	0 to ¼	¼ to ½	½ to 1	½ to 1
2		30	60	91	9.42	0.73	7.94	3.39	6.90	19.61
3		34	71	124	8.90	0.49	7.72	2.30	4.96	21.39
4	A1	10	3	29	--	0.77	0.50	0.52	1.07	4.17
	A2	5	8	4	--	--	--	--	--	2.00
	B1	1	0	2	--	--	--	--	--	--
	B2	2	0	1	--	--	--	--	--	--
	C1[c]	9	57	41	--	--	0.64	0.55	0.89	12.38
	C2[c]	8	16	22	--	--	0.50	0.51	0.79	3.34
	D	4	1	2	--	--	--	--	--	2.50
	E	2	3	3	--	--	0.47	0.50	0.50	1.14
2	A1	9	19	34	--	0.73	0.74	1.15	2.05	7.95
	A2	5	10	13	--	--	--	--	--	3.17
	B1	2	0	1	--	--	--	--	--	--
	B2	2	0	1	--	--	--	--	--	--
	C1	0	0	0	--	--	0.70	1.00	1.38	4.83
	C2	9	20	10	--	--	0.70	1.00	1.38	1.88
	D	4	0	2	--	--	--	--	--	2.45
	E	2	3	4	--	--	--	--	--	1.14

Notes:
a Does not include the conservation easement located north of the Missouri River at Great Falls Substation (Lewis and Clark Greenway Conservation Easement)
b Interstate 15, U.S. Highways 2 and 87, and Montana State Highway 44
c C1 and C2 do not have the same endpoints.
-- not available

Diamond Valley and Teton River Realignment Segment B2

Segment B2 is a 6.5-mile-long alignment that would diverge from Alternative 2 at the same location as segment B1. Where the segment B2 alignment intersects the Alternative 3 alignment and existing NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join Alternative 2 just south of the Teton River. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing. Segment B2 would then cross the Teton River just east of the location described in Alternative 2. Segment B2 would address a landowner concern over opening a new corridor rather than paralleling an existing line which already has disrupted farming practices in some fields.

Brady Frontage Road Realignment Segment C1

Segment C1 is a 15-mile-long realignment that would diverge from Alternative 2 approximately 8 miles southeast of Brady. Segment C1 would run directly west from the Alternative 2 along the northern edge of the Teton River bank to the Interstate 15 frontage road, and follow the frontage road for about 11 miles past the town of Brady to rejoin Alternative 2 about two miles north of Brady. Segment C1 would closely parallel the existing transportation corridor of Interstate 15 and the frontage road. Segment C1 would decrease crossing of farmland and avoid paralleling one pipeline.

Conrad Realignment Segment C2

Segment C2 is a 41-mile-long realignment that would diverge from Alternative 2 at the same location as segment C1. After approximately 3 miles running directly west, segment C2 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it intersects the river. The alignment generally parallels the Dry Fork of the Marias until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn due west for approximately 1 mile before rejoining Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. This segment would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

Belgian Hill Realignment Segment D

Segment D is a 2.8-mile-long realignment that would move the alignment slightly west from the Alternative 2 alignment for 2 miles, just north of Belgian Hill, farther away from four residences (**Figure A2**). The alignment would generally parallel Alternative 2. Segment D would result in greater potential for general local acceptance. This segment would reduce visual impacts. Some diagonal crossing of farmland would be required.

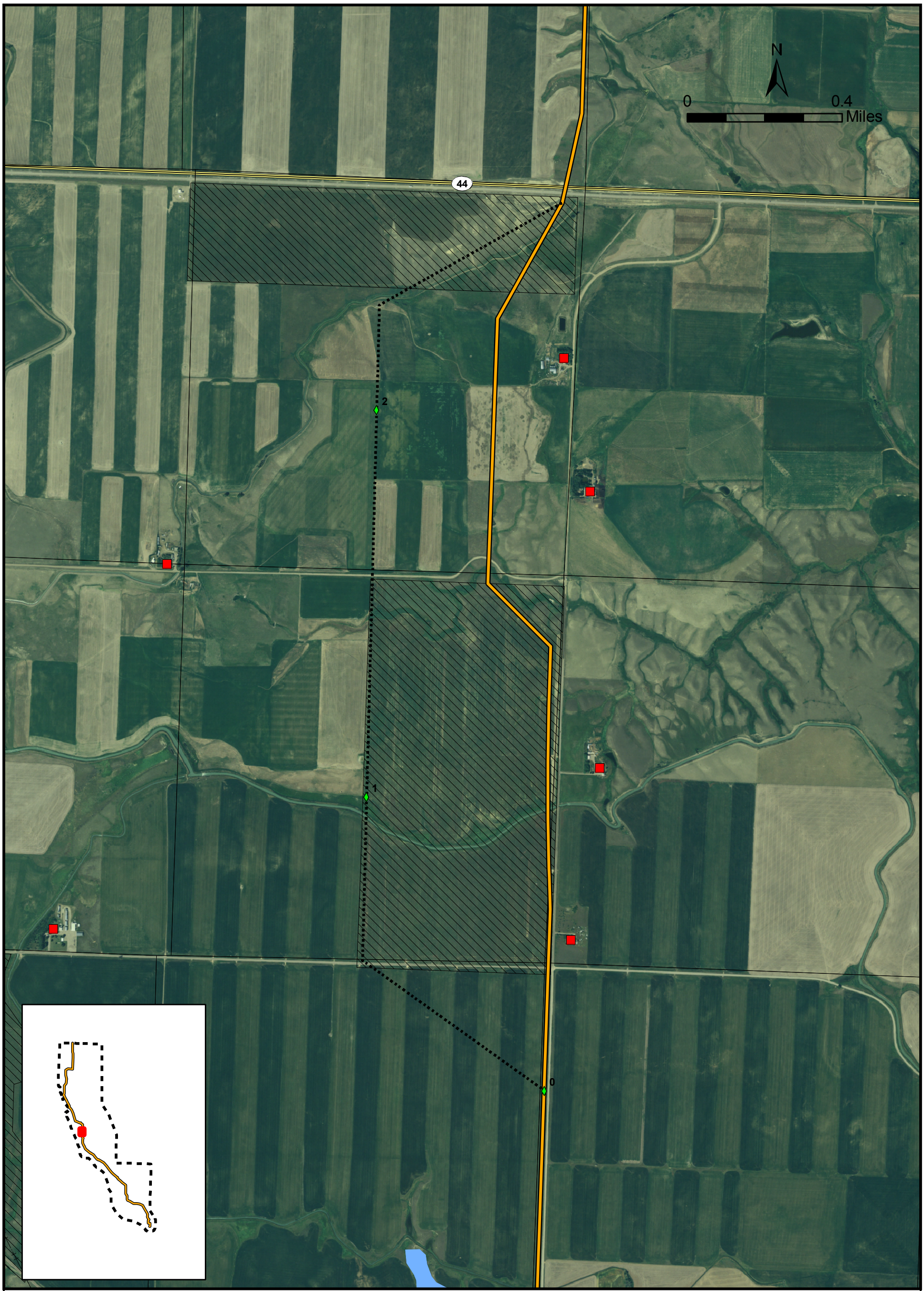


FIGURE A2
SEGMENT D
BELGIAN HILL

LEGEND

- ALT2 - ALIGNMENT
- SEGMENT D BELGIAN HILL
- MILEPOSTS
- RESIDENCES OR FARMSTEADS WITHIN 1 MILE OF ALIGNMENTS

EASEMENTS

- CONSERVATION RESERVE PROGRAM

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- EXISTING TRANSMISSION LINES
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

GIS map by Ed Madej TTEMI-HE FigA2_MATL_Alt4_SegD_021507.mxd

South of Cut Bank Realignment Segment E

Segment E is a 2.5-mile-long realignment that would move the alignment approximately ¼ mile west for a 2-mile stretch, just south of the Alternative 2 intersection with Highway 2. Segment E would move the alignment to follow property boundaries better and is located farther away from residential areas and result in greater potential for general local acceptance. Segment E would generally parallel Alternative 2.

Land Use Segment Analysis

Table A1 shows how many miles of cropland and CRP would be crossed by each agency-proposed local realignment segment in comparison to the same segment of Alternative 2.

TABLE A1
AGENCY SEGMENT CROPLAND COMPARISON
TO ALTERNATIVE 2 SEGMENTS

	Linear Miles	Acres in 500-Foot Wide Buffer	Miles Crossing CRP or Cropland
Segment A1 **(West Great Falls)**	**27.3**	1,652	11.7
Alternative 2 Corresponding segment	**26.8**	1,621	17.2
Segment A2 **(Shooting Sports Complex)**	**4.2**	255	2.4
Alternative 2 Corresponding segment	**5.0**	301	2.4
Segment B1 **(Diamond Valley Right Angle)**	**5.9**	357	5.4
Alternative 2 Corresponding segment	**4.2**	256	3.7
Segment B2 **(Diamond Valley & Teton River)**	**6.5**	393	5
Alternative 2 Corresponding segment	**5.9**	358	5.2
Segment C1 **(Brady Frontage)**	**15.0**	904	9.3
Alternative 2 Corresponding segment	**13.3**	804	12.6
Segment C2 **(Conrad Realignment)**	**41.0**	2,481	28.3
Alternative 2 Corresponding segment	**33.0**	1,999	27.5
Segment D **(Belgian Hill)**	**2.8**	170	2.8
Alternative 2 Corresponding segment	**2.4**	73	2.2
Segment E **(South of Cut Bank)**	**2.5**	149	0
Alternative 2 Corresponding segment	**2.3**	140	.7

Notes: Alternative 4 would require the use of monopole on cropland or CRP. The overall Alternative 2 alignment crosses 92.7 miles of cropland and CRP.

Table A2 shows the types of land use crossed by Alternatives 2 and 3, and how many miles of farm land are crossed parallel to farming rows, perpendicular to farming rows, or at a diagonal to farming rows.

TABLE A2
TYPES OF LAND USE CROSSED BY ALTERNATIVES 2 AND 3 (MILES)

	Alternative 2				Alternative 3			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Irrigated cropland	1.4	0	0.1	1.5	0	0	6.8	6.8
Non-irrigated cropland	34.5	3.9	52.8	91.2	27.3	0	63.6	90.9
Rangeland	6.3	1.8	25.5	33.6	5.2	0.2	16.2	21.6
Road/Right of Way	0.2	0.9	0.2	1.3	0.1	0	0.2	0.3
Residential	0	0	0	0	0	0	0.1	0.1
Forest	0	0	0	0	0	0	0.1	0.1
Riparian	0.6	0	1.3	1.9	0.1	0	1.2	1.3
Water	0	0	0	0	0	0	0.1	0.1
Total Miles	43.0	6.6	79.9	129.5	32.7	0.2	88.3	121.2

Notes:

[a] parallel to north and south

[b] perpendicular to north and south

[c] diagonal to north and south

Sources: Orthophotographs 2005 (Montana NRIS 2006a); NRIS 2000; MATL 2006b; field verification; photographic interpretation

The agency-proposed local realignment segments were developed, in part, to reduce the impacts on farming from the proposed transmission line. The numbers of miles of crossings parallel to, perpendicular to, and diagonal to irrigated cropland, non-irrigated cropland, and rangeland are summarized for corresponding segments of Alternative 2 and agency-proposed local realignments (**Table A3**).

TABLE A3
MILES OF PARALLEL, PERPENDICULAR, AND DIAGONAL ACROSS CROPLAND AND RANGELAND ALTERNATIVE 2 AND CORRESPONDING AGENCY LOCAL REALIGNMENT SEGMENT

	Alternative 2				Agency-proposed Local Realignment Segment			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Segment A1 — West Great Falls								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	5.4	1.0	10.8	17.2	6.6	1.6	3.5	11.7
Rangeland/ Native	1.0	1.0	6.5	8.5	1.9	2.7	10.7	15.3
Other	0	0.9		0.9	0.1	--	0.1	0.2
Total Miles	**6.4**	**2.9**	**17.3**	**26.6**	**8.6**	**4.3**	**14.3**	**27.2**
Segment A2 — Great Falls Shooting Sports Complex								
Irrigated	-	-	-	-	-	-	-	-
Non-irrigated	1.7	0.5	0.2	2.4	1.7	0.1	0.6	2.4
Rangeland/ Native	1.1	0.0	0.7	1.8	1.1	--	0.7	1.8
Other	0.0	0.0	0.0	0.0	--	--	--	--
Total Miles	**2.8**	**0.5**	**0.9**	**4.2**	**2.8**	**0.1**	**1.3**	**4.2**
Segment B1 — Diamond Valley Right Angle								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	--	--	3.7	3.7	2.5	2.9	--	5.4
Rangeland/ Native	--	--	0.3	0.3	--	0.4	--	0.4
Other	--	--	--	--	--	0.1	--	0.1
Total Miles	**--**	**--**	**4.0**	**4.0**	**2.5**	**3.4**	**--**	**5.9**
Segment B2 — Diamond Valley Diagonal-Teton River								
Irrigated	0.0	0.0	0.0	0.0	-	-	-	-
Non-irrigated	0.0	0.0	5.2	5.2	0.5	0.8	3.7	5.0
Rangeland/ Native	0.0	0.0	0.8	0.8	0.2	0.5	0.7	1.4
Other	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1
Total Miles	**0.0**	**0.0**	**6.2**	**6.2**	**0.7**	**1.3**	**4.5**	**6.5**
Segment C1 — Brady Frontage								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	--	0.5	12.1	12.6	--	3.8	5.5	9.3
Rangeland/ Native	--	0.1	0.6	0.7	--	0.8	0.0	0.8
Other	--	--	0.2	0.1	--	--	4.9	4.9
Total Miles	**--**	**0.6**	**12.9**	**13.4**	**--**	**4.6**	**10.4**	**15.0**

TABLE A3
MILES OF PARALLEL, PERPENDICULAR, AND DIAGONAL ACROSS CROPLAND AND RANGELAND ALTERNATIVE 2 AND CORRESPONDING AGENCY LOCAL REALIGNMENT SEGMENT

	Alternative 2				Agency-proposed Local Realignment Segment			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Segment C2 — Conrad Realignment								
Irrigated	0.9	--	0.0	0.9	1.2	0.5	-	1.7
Non-irrigated	3.3	--	23.2	26.6	14.8	6.5	5.3	26.6
Rangeland/ Native	0.6	--	3.9	4.5	1.1	1.2	9.8	12.1
Other	0.1	--	0.9	0.9	0.2	-	0.4	0.6
Total Miles	**4.9**	**0.0**	**28.0**	**32.9**	**17.3**	**8.2**	**15.5**	**41.0**
Segment D — Belgian Hill								
Irrigated	0.4	--	--	0.4	--	--	--	--
Non-irrigated	1.0	--	0.6	1.6	2.8	--	--	2.8
Rangeland/ Native	0.2	--	0.1	0.1	--	--	--	--
Other	0.1	--	--	0.1	--	--	--	--
Total Miles	**1.7**	**0**	**0.7**	**2.4**	**--**	**--**	**--**	**2.8**
Segment E — South of Cut Bank								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	0.7	--	--	0.7	--	--	0	--
Rangeland/ Native	0.8	--	0.8	0.8	2.4	--	--	2.4
Other	--	--	--	0	--	--	--	--
Total Miles	**1.5**	**0**	**0.8**	**1.5**	**--**	**--**	**--**	**2.4**

Notes:

[a] parallel to north and south

[b] perpendicular to north and south

[c] diagonal to north and south

-- Not applicable

Sources: Orthophotographs 2005 (Montana NRIS 2006a); MATL 2006b; field verification; photographic interpretation .

The following observations were made:

- Segment A1 (West Great Falls) is 0.6 miles longer than the segment it would replace in Alternative 2, however, it reduces the diagonal crossing of cropland from 10.8 miles to 3.5 miles.
- Segment A2 (Great Falls Shooting Sports Complex) increases the diagonal crossing of non-irrigated cropland from 0.2 in Alternative 2 to 0.6 miles in Alternative 4.
- Segment B1 (Diamond Valley Right Angle) is 1.9 miles longer than the segment it would replace in Alternative 2, however, it eliminates diagonal crossing of cropland, compared to 3.7 miles of diagonal crossing in Alternative 2 for this segment and moves the transmission line alignment onto existing utility corridors or other land uses (non-farm).
- Segment B2 (Diamond Valley Diagonal - Teton River) is 0.3 miles longer than the segment of Alternative 2 it would replace, but it reduces the diagonal crossing of cropland from 5.2 miles to 3.7 and shifts the crossing to parallel (0.5 miles) or perpendicular (0.8 miles).
- Segment C1 (Brady Frontage) is 1.6 miles longer than the segment it would replace in Alternative 2. It would reduce the diagonal crossing of cropland from 12.1 miles to 5.5 miles.
- Segment C2 (Conrad Realignment) is nearly 8 miles longer than the segment of Alternative 2 it would replace (41 miles compared to 32.9 miles), however, it would substantially reduce the diagonal crossing of cropland from 23.2 miles to 5.3 miles. Most (14.8 miles) of the cropland crossed would be parallel to the north-south orientation of crop rows. Approximately 6.5 miles would be crossed perpendicular to the rows. Additionally, more of the alignment (12.1 miles) would cross native vegetation or rangeland, compared to Alternative 2 which has 4.5 miles crossing those vegetation types.
- Segment D (Belgian Hill) is 0.4 miles longer than the segment it would replace in Alternative 2, however, it would remove all the diagonal crossing of cropland in this segment and increase the distance of parallel crossing from 1.4 miles to 2.8 miles. The parallel crossings or alignment near the edges of the fields would not interfere with farming activities as much as diagonal crossings.
- Segment E (South of Cut Bank) is 0.9 miles longer than the segment it would replace in Alternative 2, however, it would remove all crossings of cropland (including diagonal) and move the alignment onto native or rangeland vegetation.

Table A4 compares how many miles of transmission line cross CRP land or cropland under each agency-proposed local realignment segment and how many acres would be affected. Segments B1, C2, and D would result in a slight increase in acres removed from production because of the longer length of the line under these segments (see **Table A4)**.

TABLE A4
Acres of Production in CRP or Cropland Affected by Monopole Structures in Agency-proposed Local Realignments Compared to Alternative 2

	Alternative 2		Agency-proposed Local Realignment	
Segment	**Miles**	**Acres[a]**	**Miles**	**Acres[a]**
A1 West Great Falls	17.2	1.8	11.7	1.2
A2 Great Falls Shooting Sports Complex	2.4	0.3	2.4	0.3
B1 Diamond Valley Right Angle	3.7	0.4	5.4	0.6
B2 Diamond Valley Diagonal-Teton River	5.2	0.5	5.0	0.5
C1 Brady Frontage	12.6	1.3	9.3	1.0
C2 Conrad Realignment	27.5	2.8	28.3	3.0
D Belgian Hill	2.0	0.2	2.8	0.3
E South of Cut Bank	0.7	0.1	0.0	0.0

Notes:

[a] Acres rounded to nearest 0.01. Calculation based on 0.01 acres per structure at a structure every 500 feet (10.5 structures per mile)

Sources: Orthophotographs, 2005 (Montana NRIS 2006a), NRIS 2000, MATL 2006b; field verification; photographic interpretation

Some segments (B1 - Diamond Valley Right Angle, C1 – Conrad Realignment and D - Belgian Hill) increase the length of power line crossing farmland and CRP slightly (see **Table A4**) over Alternative 2 for those segments.

Conservation Easements and Special Management Areas

Linear miles of lands under federal/state special management and those lands currently under federal or state conservation easements (wetland easements, CRP, and FWP easements) are summarized in **Table A5** for each alignment. Segments A1 and A2 would eliminate crossing the Great Falls Shooting Sports Complex. Some agency-proposed local realignments would increase the number of miles crossing CRP over corresponding Alternative 2 segments they would replace.

TABLE A5 MILES OF FEDERAL/STATE SPECIAL MANAGEMENT AREAS AND CONSERVATION EASEMENTS CROSSED			
	Alternative 2 Corresponding Segment	**Alternative 3**	**Agency-proposed Local Realignments**
State Land (FWP) – Great Falls Shooting Sports Complex			
Segment A1 (West Great Falls)	0.73	--	0
Segment A2 (Great Falls Shooting Sports Complex)	0	0.51	0.76
Segment B1 (Diamond Valley Right Angle)	--	--	--
Segment B2 (Diamond Valley Diagonal-Teton River)	--	--	--
Segment C1 (Brady Frontage)	--	--	--
Segment C2 (Conrad Realignment)	--	--	--
Segment D (Belgian Hill)	--	--	--
Segment E (South of Cut Bank)	--	--	--
Montana State Trust Land (DNRC)			
Segment A1 (West Great Falls)	3.69	--	2.56
Segment A2 (Great Falls Shooting Sports Complex)	0.12	--	0.08
Segment B1 (Diamond Valley Right Angle)	0.00	--	0.00
Segment B2 (Diamond Valley Diagonal-Teton River)	1.24	--	1.24
Segment C1 (Brady Frontage)	1.14	--	2.68
Segment C2 (Conrad Realignment)	1.70	--	4.03
Segment D (Belgian Hill)	0.00	--	0.00
Segment E (South of Cut Bank)	0.00	--	0.00
Conservation Easements			
Segment A1 (West Great Falls)	(CRP) 5.32 (Stewardship) 0.12	--	10.04
Segment A2 (Great Falls Shooting Sports Complex)	0.00	--	0.00
Segment B1 (Diamond Valley Right Angle)	0.00	--	0.00
Segment B2 (Diamond Valley Diagonal-Teton River)	1.54	--	1.54
Segment C1 (Brady Frontage)	0.00	--	3.10
Segment C2 (Conrad Realignment)	2.16	--	4.17
Segment D (Belgian Hill)	1.36	--	1.48
Segment E (South of Cut Bank)	1.04	--	0.90

Notes:
-- = not applicable

Planned Land Use

The Segment A1 West Great Falls local alignment crosses the planned Kyles Addition subdivision. No residences are under construction or completed in this subdivision.

Wetlands Segment Analysis

The length of each segment and the wetlands affected by each segment are shown in **Table A6**, along with the length of the corresponding segment of Alternative 2 which it could replace.

TABLE A6
WETLANDS AFFECTED BY SEGMENTS
AGENCY-PROPOSED LOCAL REALIGNMENT

Alternative Comparison	Segment Length	Palustrine PEM	Palustrine PUS, PUB, & PAB	Lacustrine	Riverine	Total
	(miles)	(acres)	(acres)	(acres)	(acres)	(acres)
West Great Falls Segment A1	27.3	13.25	0.43	0.0	0.0	13.68
Corr. Alt. 2 Segment	26.8	15.72	1.07	0.78	0.0	17.57
Great Falls Shooting Sports Complex Segment A2	4.2	0.0	0.13	3.21	0.0	3.34
Corr. Alt. 2 Segment	5.0	4.13	0.0	0.78	0.0	4.91
Diamond Valley Right Angle Segment B1	5.9	<1 Est.	ND	ND	<1 Est.	ND
Corr. Alt. 2 Segment	4.2	<1 Est.	ND	ND	<1 Est.	ND
Diamond Valley Diagonal-Teton River Segment B2	6.5	1-2	ND	ND	2-3	ND
Corr. Alt. 2 Segment	5.9	1-2	ND	ND	2-3	ND
Brady Frontage Segment C1	15.0	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	13.3	10.12	1.98	0.0	0.0	12.10
Conrad Realignment Segment C2	41.0	18.10	2.01	0.0	0.0	20.11
Corr. Alt. 2 Segment	33.0	13.75	1.98	0.0	0.0	15.73
Belgian Hill Segment D	2.8	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	2.4	0.0	0.41	0.0	0.0	0.41
South of Cut Bank Segment E	2.5	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	2.3	0.0	0.0	0.0	0.0	0.0

Notes:

Alt. Alternative
Corr. Corresponding
PEM Palustrine Emergent wetlands
PUS Palustrine Unconsolidated Shore wetlands
PUB Palustrine Unconsolidated Bottom wetlands
PAB Palustrine Aquatic Bed wetlands
Est. estimated using the 2005 aerial photographs
ND No Data

Potential impacts to wetlands for all eight local realignment segments were evaluated using the wetland data provided in **Table A6**. Total potential wetlands recorded along each local realignment segment were compared to the total wetlands recorded for the corresponding segment of Alternative 2. The total wetland acres was also segregated into four main wetland categories (2 palustrine classes, 1 lacustrine, and 1 riverine) to better evaluate the types of wetlands that each segment may impact. Total wetland acreage does not include any wetlands that may exist in Teton County for the portion of the segments where no official wetland data currently exist. The 2005 National Agricultural Imagery Program aerial photographs were used to visually identify observable wetlands along the local realignment segments in Teton County and to estimate the approximate number of wetlands for these alignments. Even though the wetland acreage could not be quantified from the aerial photographs, it was determined that no single large wetland or concentration of wetlands existed that could not be spanned using 500 foot span lengths.

Potential impacts to wetlands for the local realignment segments were compared only to the corresponding segments of Alternative 2 for which each could substitute. As was determined for the entire analysis area, the majority of the wetlands along all local realignment segments are classified as palustrine, emergent wetlands (PEM).

Segment A1 (West Great Falls) The A1 segment traverses around the southern and western sides of Benton Lake NWR area and would potentially impact 3.89 fewer acres of wetlands, compared to the corresponding segment of Alternative 2. Several smaller areas with palustrine and lacustrine wetlands exist directly north of Great Falls (Black Horse Lake area) and along the western side of Benton Lake NWR. A1 would impact fewer wetlands primarily because it is located along steeper slopes compared to crossing a more flat bench area. No riverine wetlands are delineated along segment A1 facility location. However, segment A1 crosses the Lake Creek channel in Teton County and could potentially impact a small riverine wetland (possibly about 1 acre) at that location.

Segment A2 (Great Falls Shooting Sports Complex Realignment) This 4.2 mile long segment runs north from the Great Falls 230-kV switch yard along the edge of cropland and parallel to the access road to the Great Falls Shooting Sports Complex. The Segment A2 centerline crosses over an actively used gun club, but would not be located over any existing or planned buildings. The segment A2 facility location would potentially impact 1.57 fewer acres of wetlands compared to the corresponding segment of Alternative 2. The primary difference between these two alignments was that the segment A2 realignment would cross a larger portion of the Black Horse Lake Flat that has been mapped as a lacustrine wetland.

Segment B1 (**Diamond Valley Right Angle)** This 5.9 mile long B1 segment is located in Diamond Valley area of Teton County, approximately 2 to 5 miles south of the Teton River. The types and amounts of wetlands that would be impacted within the 500 foot wide facility location of segment B1 are very similar to those that occur along the 4.2 mile long corresponding Alternative 2 portion. Both segment B1 and the corresponding Alternative 2 centerlines would cross Hunt Coulee; segment B1 would cross this coulee at a straight east to west angle, while the Alternative 2 would cross Hunt Coulee at a southeast to northwest angle. Hunt Coulee has palustrine emergent wetlands (estimated to be less than one acre) and a small area of riverine wetlands (estimated to be less than one acre) in the bottom of the coulee. These wetland areas could be spanned causing minimal impacts to wetlands under both the B1 segment and Alternative 2 alignments.

Segment B2 (Diamond Valley and Teton River) This 6.5 mile long segment B2 is also located in the Diamond Valley area of Teton County, but would utilize the same alignment as Alternative 3 for approximately 3.25 miles where it would parallel the existing NWE 115-kV transmission line. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing of Hunt Coulee. This alignment would also extend further north and includes a modified crossing of the Teton River that avoids some cropland. The types and amounts of wetlands that would be impacted within the 500 foot wide facility location for segment B2 are very similar to those that occur along the 5.9 mile long corresponding Alternative 2 portion. Both alternative alignments would cross small areas with palustrine emergent wetlands (estimated at one to two acres) and a small area of riverine wetlands (estimated at two to three acres) in the bottom of Hunt Coulee and the Teton River. All wetland areas visually identified on the 2005 aerial photographs for segment B2 could be spanned.

Segment C1 (Brady Frontage Road) Segment C1 is a 15.0 mile long alignment that runs directly east - west along the northern edge of the Teton River bank and then parallels the Interstate 15 frontage road for approximately 11 miles, connecting back with the Alternative 2 alignment just north of Brady, Montana. Segment C1 would potentially impact 12.1 fewer acres of wetlands compared to the Alternative 2 alignment through this area. There are no wetlands of any type mapped along the Brady Frontage Road alignment. Several areas with palustrine wetlands (total of 12.1 acres) exist along the corresponding segment of Alternative 2 through this area.

Segment C2 (Conrad Realignment) Segment C2 is a 41.0 mile long alignment that runs around the Town of Conrad on the east and north sides. Segment C2 takes off from Alternative 2 at the same location as segment C1. Both Alternative C1 and C2 segments would be in the same alignment for approximately 3.25 miles where segment C2 would begin to run north. This alternative alignment would travel north for approximately 20 miles where it would turn west and continue for approximately 18 miles where it

would rejoin Alternative 2. This alternative alignment would cross several major coulees (South Pondera, Pondera, Favot, and Big Flat) and the Dry Fork Marias River.

Segment C2 would potentially impact 4.38 more acres of total wetlands compared to the corresponding Alternative 2 alignment through this area. The main reason for the increased number of wetlands crossed by segment C2 is the higher proportion of coulees and unfarmed drainages that were used by this alternative in the avoidance of farmed land. Small areas with palustrine and riverine wetlands exist along most of the major coulees and along the Dry Fork Marias River crossing. Segment C2 also crosses slightly larger and more defined drainages due to its more eastern location. Drainages generally flow west to east in this area and tend to have more defined channels as they flow toward the Missouri River.

Segment D (Belgian Hill) Segment D is a relatively short (2.8 mile) alignment located in the Belgian Hill area. This alternative segment generally parallels Alternative 2, but is located approximately ½ mile to the west. This alignment segment was developed primarily to minimize visual impacts to four residences located along the Alternative 2 alignment. Segment D would potentially impact 0.41 fewer acres of palustrine wetlands compared to Alternative 2 through this locale.

Segment E (South of Cut Bank) Segment E is a relatively short (2.5 mile) segment located in an area southeast of Cut Bank. This alternative segment also parallels the Alternative 2 alignment approximately ½ mile to the west. This alignment segment was developed primarily to minimize visual impacts to residences located along the Alternative 2 alignment and to avoid paralleling a buried gathering pipeline for the oil wells in the local area. There are no mapped wetlands along either segment E or the corresponding Alternative 2 alignment in this locale.

Vegetation Segment Analysis

Rangeland vegetation, such as grassland, improved pasture, seeded grasslands, shrubland, badland, riparian and wetlands, and forested cover types, would be removed by the construction of access roads and structures, and at construction staging areas. Maintenance activities would not likely result in additional ground disturbance. Linear miles of rangeland cover types affected by alternative are presented in **Table A7**. Disturbance resulting from staging areas would be similar for Alternatives 2 and 3.

Agency-proposed local realignment segments total approximately 38.5 miles. The comparable segments of Alternative 2 total almost 20 miles (**Table A8**), nearly doubling the grassland the rangeland cover types under alternative segments. The increased crossing in rangeland cover types would result in more tower structures and access roads, thus increasing rangeland impacts. Disturbance due to maintenance activities would also increase over the life of the project due to increased structure and road

placement in rangeland and vegetation (**Table A9**). Disturbance resulting from staging areas would be similar to those of Alternatives 2 and 3.

TABLE A7
Native Vegetation Cover Types Crossed by Alternatives 2, 3, and 4

Rangeland Cover Types	Alternative 2		Alternative 3		Agency-proposed Local Realignments	
	Miles	Total Land Cover (percent)	Miles	Total Land Cover (percent)	Miles	Total Land Cover (percent)[a]
Grassland/ Shrubland	33.6	25.9	21.6	17.8	A1 = 15.3 A2 = 1.8 B1 = 0.4 B2 = 1.3 C1 = 0.8 C2 = 12.0 D = 2.8 E = 2.5	A1 = 56.2 A2 = 42.2 B1 = 7.3 B2 = 19.9 C1 = 5.2 C2 = 29.1 D = 99.0 E = 100.0
Riparian	1.9	1.5	1.3	1.1	A1 = 0.2 A2 = 0.03 B1 = 0.1 B2 = 0.2 C1 = 0.05 C2 = 1.0 D = 0.04 E = 0.0	A1 = 0.7 A2 = 0.7 B1 = 2.2 B2 = 2.8 C1 = 0.3 C2 = 2.3 D = 0.01 E = 0.0
Forest (Cottonwood)	0.0	0.0	0.1	0.1	B2 = 0.04[b]	B2 = 0.6
Total	35.5	27.4	23.0	19.0	--	--
Total Line Length	129.9	--	121.6	--	--	--

Notes:
a Percent of segment..
b Found only in segment B_2
Source: Orthophotographs 2005 (Montana NRIS 2006a) analysis of land cover in vegetation analysis area, October 2006.
-- not applicable

TABLE A8
LINEAR MILES OF VEGETATION CHANGE BETWEEN ALTERNATIVE 2 AND AGENCY-PROPOSED LOCAL REALIGNMENTS

Native Vegetation Cover Types	Alternative 2 (miles)	Agency-proposed Local Realignments (miles)
Rangeland	A1 = 8.5 A2 = 1.8 B1 = 0.3 B2 = 0.8 C1 = 0.6 C2 = 4.5 D = 0.3 E = 1.6	A1 = 15.3 A2 = 1.8 B1 = 0.4 B2 = 1.3 C1 = 0.8 C2 = 12.0 D = 2.8 E = 2.5
Riparian	A1 = 0.0 A2 = 0.0 B1 = 0.2 B2 = 0.2 C1 = 0.1 C2 = 0.8 D = 0.1 E = 0.0	A1 = 0.2 A2 = 0.03 B1 = 0.1 B2 = 0.2 C1 = 0.05 C2 = 1.0 D = 0.04 E = 0..0
Forest (Cottonwood)	No Data	B2 = 0.4 [a]

Note:
a Found only in segment B_2
Source: Orthophotographs 2005 (Montana NRIS 2006a) of land cover in vegetation analysis area, October 2006

TABLE A9
ESTIMATED ACRES OF DISTURBANCE DUE TO H-FRAME STRUCTURES IN RANGELAND VEGETATION

Rangeland Cover Types	Alternative 2			Agency-proposed Local Realignments		
	Miles[a]	Number of Structures[b]	Acres[c]	Miles	Number of Structures	Acres
Grassland/ Shrubland	18.4	121	0.1	36.9	244	0.2
Riparian	1.4	9	<0.01	1.6	11	<0.01
Total	19.8	130	0.1	38.5	255	0.2

Notes:
a Segment total.
b Average 800-foot span between H-frame structures.
c Based on 36 square feet occupied by an H-frame structure.

Riparian Vegetation
The effects to riparian vegetation from the agency-proposed local realignments would be similar to those of Alternative 2 because both alternatives cross similar amounts of riparian habitat (**Table A9**).

Species of Concern
The effects on species of concern from agency-proposed local realignments would be the same as Alternative 2 because both alternatives cross similar amounts of riparian habitat where these species are likely to occur (**Table A10**).

Weed Control
The agency-proposed local realignments would cross more native vegetation than Alternative 2 (**Table A8**). This increase in land area potentially exposed to disturbance and noxious weed invasion would require greater diligence, expense, and coordination to successfully implement a noxious weed control plan (**Table A9**). The MATL Noxious Weed and Invasive Plant Control Plan (**Appendix C**) would adequately reduce the increased risk of noxious weed spread in the analysis area.

Wildlife Segment Analysis

Big Game Species
Impacts on big game species would not be expected. Pronghorn and mule deer does with fawns could be displaced by activities during late spring and early summer, but disturbance within a given portion of the line would be temporary and animals could easily use adjacent habitat during disturbance periods. Activities would not disturb wintering animals as the construction activities would occur during the spring and summer months. The proposed and alternative transmission line alignments would cross through mule deer winter range and there would be some permanent loss of habitat as a result of structures and access roads (see **Table A10).** This habitat loss would not impact mule deer as this is a minor loss relative to the amount of available habitat within the region.

TABLE A10 MULE DEER WINTER RANGE IMPACTED BY ALTERNATIVES				
MULE DEER WINTER RANGE	Alternative			
	2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Miles of Mule Deer Winter Range Bisected by Transmission Line	Alternative 2 Segment A 19	20	A1 = 1.8 A2 = 1.8 B1 = 0 B2 = 1.0 C1 = 0.67 C2 = 9.3 D = 0 E = 0	A1 = 4.2 A2 = 1.8 B1 = 0.9 B2 = 3.0 C1 = 4.8 C2 = 8.8 D = 0 E = 0

Notes:
a Segment of the Alternative 2 alignment that corresponds with the agency-proposed local realignment segment.
b Agency-proposed local realignment segments that correspond to the Alternative 2 segments.

Threatened and Endangered Segment Analysis

The alternative alignments traverse the known habitat range of four Species of Concern and one federally threatened species. **Table A11** lists the linear miles of special status species' habitat range along each of the two action alternatives and local realignments.

TABLE A11 LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE AND AGENCY-PROPOSED LOCAL REALIGNMENTS					
Common Name	**State Rank**	**Alternative**			
		2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Black-crowned night-heron	S3B	11.2	9.1	A1 = 11.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 2.6 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Black-necked stilt	S3, S4B	11.2	9.1	A1 = 11.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 2.6 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0

TABLE A11
LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE AND AGENCY-PROPOSED LOCAL REALIGNMENTS

Common Name	State Rank	Alternative			
		2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Burrowing owl	S2B	4.2	3.9	A1 = 4.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Ferruginous hawk	S2B	6.5	0	A1 = 6.5 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 5.8 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Peregrine falcon	S2B	2.5	2.2	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Total for All species	--	19.9	11.3	A1 = 17.7 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 8.4 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0

Notes:

Source: MTNHP. 2005. GIS Analyses of Element Occurrence Data. Montana Natural Heritage Program, Helena, Montana. Available at: **http://nhp.nris.state.mt.us/mbd**

State: S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range; B = a state rank modifier indicating breeding status for a migratory species; S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations; S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery; S1 = critically imperiled because of extreme rarity, or because of some factor of its biology making it especially vulnerable to extirpation; SH = Historical, known only from records over 50 years ago; may be rediscovered; N = non-breeding.

a Segment of the Alternative 2 alignment that corresponds with the agency-proposed local realignment segment.
b Agency-proposed local realignment segments that correspond to the Alternative 2 segments.

Socioeconomics Segment Analysis

The socioeconomic impacts described above are essentially equal for all of the alternatives and segments with the exception of differences in the estimated property tax revenue available to each affected county depending on the mileage of the line that would ultimately be constructed within each county's jurisdiction (**Table A12**).

Cultural Resources Segment Analysis

The Class 1 cultural resource searches resulted in the identification of three previously recorded sites considered eligible for the NRHP in sections along the agency-proposed local realignment segments. These sites include the Rainbow Dam Road, an historic transmission line, and the Burlington Northern-Santa Fe Railroad. There are 20 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes six tipi ring sites, two lithic scatter sites, two prehistoric camp sites, an historic road or trail, five homesteads, two historic irrigation systems, one historic trash dump, and one historic mining site.

Two NRHP-eligible sites, 24CA416 the Rainbow Dam Road and 24CA1040 an historic transmission line just north of the Missouri River, are located in sections containing both segment A1 and segment A2. The sections crossed by segment A1 contains three of the tipi ring sites, the two lithic scatter sites, the two prehistoric camp sites, three of the homesteads, and the historic mining site in the category of undetermined, unknown, or unresolved NRHP eligibility.

There are no previously recorded cultural resource sites in sections along either segment B1 or segment B2.

One section along segment C1 contains one tipi ring site of undetermined NRHP eligibility. Several sections along segment C2 contain two of the tipi ring sites, two of the homesteads, one of the historic irrigation systems, and the one historic trash dump in the category of undetermined, unknown, or unresolved NRHP eligibility.

Two sections along segment D contain the historic road or trail and one of the historic irrigation systems both of undetermined NRHP eligibility. Two sections along segment E contain the NRHP-eligible Site 24GL191, the Great Northern Railroad – now part of the Burlington Northern-Santa Fe.

TABLE A12 TAX BENEFIT ESTIMATES FOR ALTERNATIVES AND SEGMENTS							
	Alignment Length (Miles)	**Value $/Mi.**	**Estimated Value in County (BxC)**	**Class 9 Tax Rate (Valuation Ratio): 12%**	**Taxable Value (DxE)**	**Avg. Rural Mill Levy**	**Property Tax (FxG)**
Cascade							
Alternative 2	12.76	$363,284	$4,635,504	0.12	$556,260	0.50412	$280,422
Alternative 3	12.31	$363,284	$4,472,026	0.12	$536,643	0.50412	$270,533
Alternative 4							
Segment A1 - Alt 2	12.75	$363,284	$4,631,871	0.12	$555,825	0.50412	$280,202
Segment A1 - Alt 4	19.8	$363,284	$7,193,023	0.12	$863,163	0.50412	$435,138
Chouteau							
Alternative 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Alternative 3	10.21	$363,284	$3,709,130	0.12	$445,096	0.43959	$195,660
Alternative 4							
Segment A1 - Alt 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Segment A1 - Alt 4	0	$363,284	$0	0.12	$0	0.43959	$0
Glacier							
Alternative 2	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Alternative 3	37.34	$363,284	$13,565,025	0.12	$1,627,803	0.53745	$874,863
Alternative 4	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Pondera							
Alternative 2	45.69	$363,284	$16,598,446	0.12	$1,991,814	0.52162	$1,038,970
Alternative 3	44.44	$363,284	$16,144,341	0.12	$1,937,321	0.52162	$1,010,545
Alternative 4							
Segment C1 - Alt 2	4.11	$363,284	$1,493,097	0.12	$179,172	0.52162	$93,460
Segment C1 - Alt 4	7.12	$363,284	$2,586,582	0.12	$310,390	0.52162	$161,906
Segment C2 - Alt 2	28.86	$363,284	$10,484,376	0.12	$1,258,125	0.52162	$656,263
Segment C2 - Alt 4	34.66	$363,284	$12,591,423	0.12	$1,510,971	0.52162	$788,153

TABLE A12
TAX BENEFIT ESTIMATES FOR ALTERNATIVES AND SEGMENTS

	Alignment Length (Miles)	Value $/Mi.	Estimated Value in County (BxC)	Class 9 Tax Rate (Valuation Ratio): 12%	Taxable Value (DxE)	Avg. Rural Mill Levy	Property Tax (FxG)
Teton							
Alternative 2	25.16	$363,284	$9,140,225	0.12	$1,096,827	0.4991	$547,426
Alternative 3	17.32	$363,284	$6,292,079	0.12	$755,049	0.4991	$376,845
Alternative 4							
Segment A1 - Alt 2	8.13	$363,284	$2,953,499	0.12	$354,420	0.4991	$176,891
Segment A1 - Alt 4	7.47	$363,284	$2,713,731	0.12	$325,648	0.4991	$162,531
Segment C1 - Alt 2	4.12	$363,284	$1,496,730	0.12	$179,608	0.4991	$89,642
Segment C1 - Alt 4	7.89	$363,284	$2,866,311	0.12	$343,957	0.4991	$171,669
Segment C2 - Alt 2	4.12	$363,284	$1,496,730	0.12	$179,608	0.4991	$89,642
Segment C2 - Alt 4	6.29	$363,284	$2,285,056	0.12	$274,207	0.4991	$136,857
Notes:							
Sources: Mullen 2006							
Montana Department of Revenue 2004							

Notes:
a Mullen 2006
b Montana Department of Revenue 2004
$/Mi. = dollars per mile

Visuals Segment Analysis

Alternative 4 was developed by comparing eight segments that originated and ended at various locations off of Alternative 2 (**Table A13**). Compared to the corresponding segment from Alternative 2, there are fewer residences in the immediate foreground and foreground (0 to ¼ mile and ¼ to ½ mile) of segments A1, A2, B1, B2, C2, and D compared to the corresponding Alternative 2 segments. The differences are all fewer than 5 residences, except A1 (A1 = 13 and corresponding Alternative 2 A1 = 28). Segment E and the corresponding Alternative 2 segment are the same. Segment C1 has a considerably more residences than the corresponding Alternative 2 segment (C1 = 66 versus corresponding Alternative 2 = 0).

Travel corridor comparison (½ to 1 mile) shows that segments A1, A2, and D have a shorter lineal mileage from the major travel routes in the area than do the corresponding Alternative 2 segments. Segment A1 is approximately 3 miles shorter than its corresponding Alternative 2 segment and the other segments are within 1.5 lineal miles of their corresponding Alternative 2 segments. Segment C1 has a considerable amount more lineal mileage within ½ to 1 mile than the corresponding Alternative 2 segment (C1 = 12.38 miles versus corresponding Alternative 2 C1 = 4.83 miles).

All recreation sites were not compared, but those that were are similar in visual impacts.

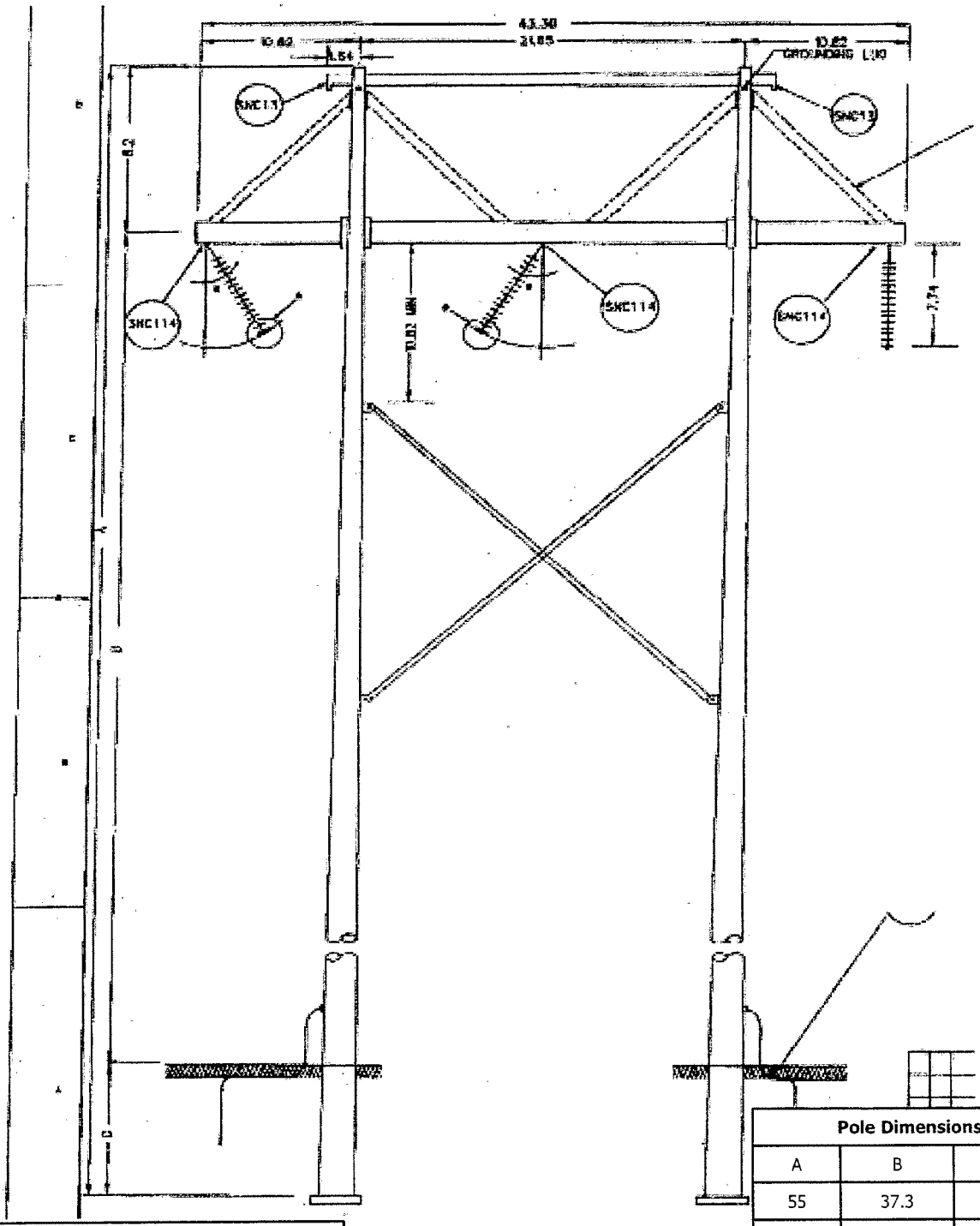
In summary, segment A1 has less of a visual impact than the corresponding Alternative 2 segment. The corresponding Alternative 2 segment C1 has considerably smaller visual impact than the segment C1. Transmission line alignments in segments D and E were located in consultation with local residents to reduce visual impacts.

TABLE A13
Comparison of Visual Impacts
Alternative 2, 3, and 4 Segments

Alternative	Segment	Number of Residences (Points)			Recreation – Benton Lake (Miles)	Recreation – State Lands[a] (Miles)	Recreation – Lewis & Clark Trail (Lineal Mileage)			Travel Corridor[b] (Lineal Mileage)
		0 to ¼	¼ to ½	½ to 1	Within One Mile	Miles Crossed	0 to ¼	¼ to ½	½ to 1	½ to 1
2		30	60	91	9.42	0.73	7.94	3.39	6.90	19.61
3		34	71	124	8.90	0.49	7.72	2.30	4.96	21.39
4	A1	10	3	29	--	0.77	0.50	0.52	1.07	4.17
	A2	5	8	4	--	--	--	--	--	2.00
	B1	1	0	2	--	--	--	--	--	--
	B2	2	0	1	--	--	--	--	--	--
	C1[c]	9	57	41	--	--	0.64	0.55	0.89	12.38
	C2[c]	8	16	22	--	--	0.50	0.51	0.79	3.34
	D	4	1	2	--	--	--	--	--	2.50
	E	2	3	3	--	--	0.47	0.50	0.50	1.14
2	A1	9	19	34	--	0.73	0.74	1.15	2.05	7.95
	A2	5	10	13	--	--	--	--	--	3.17
	B1	2	0	1	--	--	--	--	--	--
	B2	2	0	1	--	--	--	--	--	--
	C1	0	0	0	--	--	0.70	1.00	1.38	4.83
	C2	9	20	10	--	--	0.70	1.00	1.38	1.88
	D	4	0	2	--	--	--	--	--	2.45
	E	2	3	4	--	--	--	--	--	1.14

Notes:
a Does not include the conservation easement located north of the Missouri River at Great Falls Substation (Lewis and Clark Greenway Conservation Easement)
b Interstate 15, U.S. Highways 2 and 87, and Montana State Highway 44
c C1 and C2 do not have the same endpoints.
-- not available

APPENDIX B:
TYPES OF H-FRAME STRUCTURES

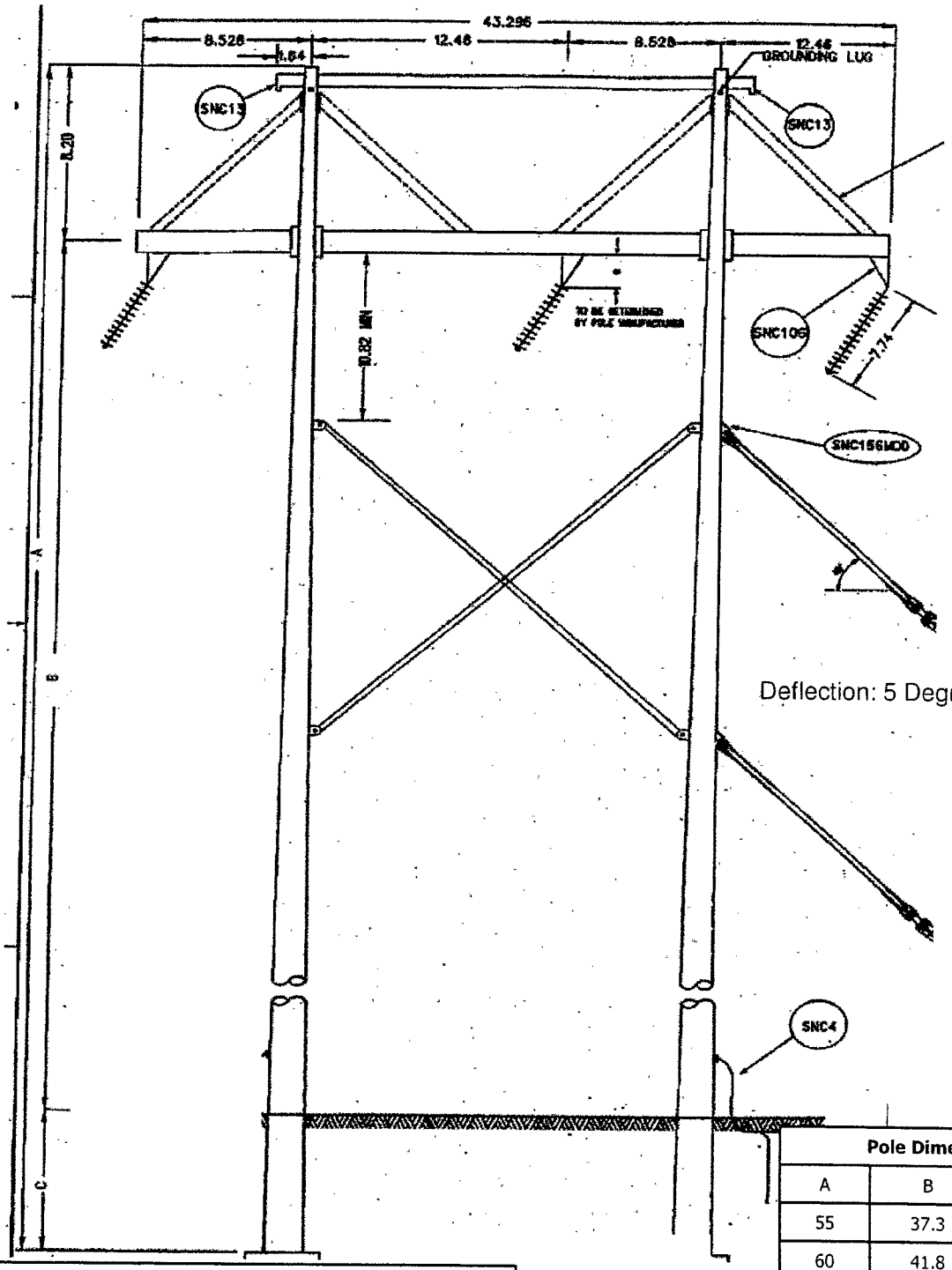


H-Frame ROW Detail		
Pole Location	ROW Distance (feet)	Safety Zone Distance (feet)
County Road ROW	30.9	30
Outside County Road ROW	37.46	30
Through Farmers Field	45	30 (either side of ROW)

Deflection: 1 Degree Line Angle

Pole Dimensions		
A	B	C
55	37.3	9.5
60	41.8	10
65	46.3	10.5
70	50.8	11
75	55.3	11.5
80	59.8	12
85	64.3	12.5
90	68.8	13

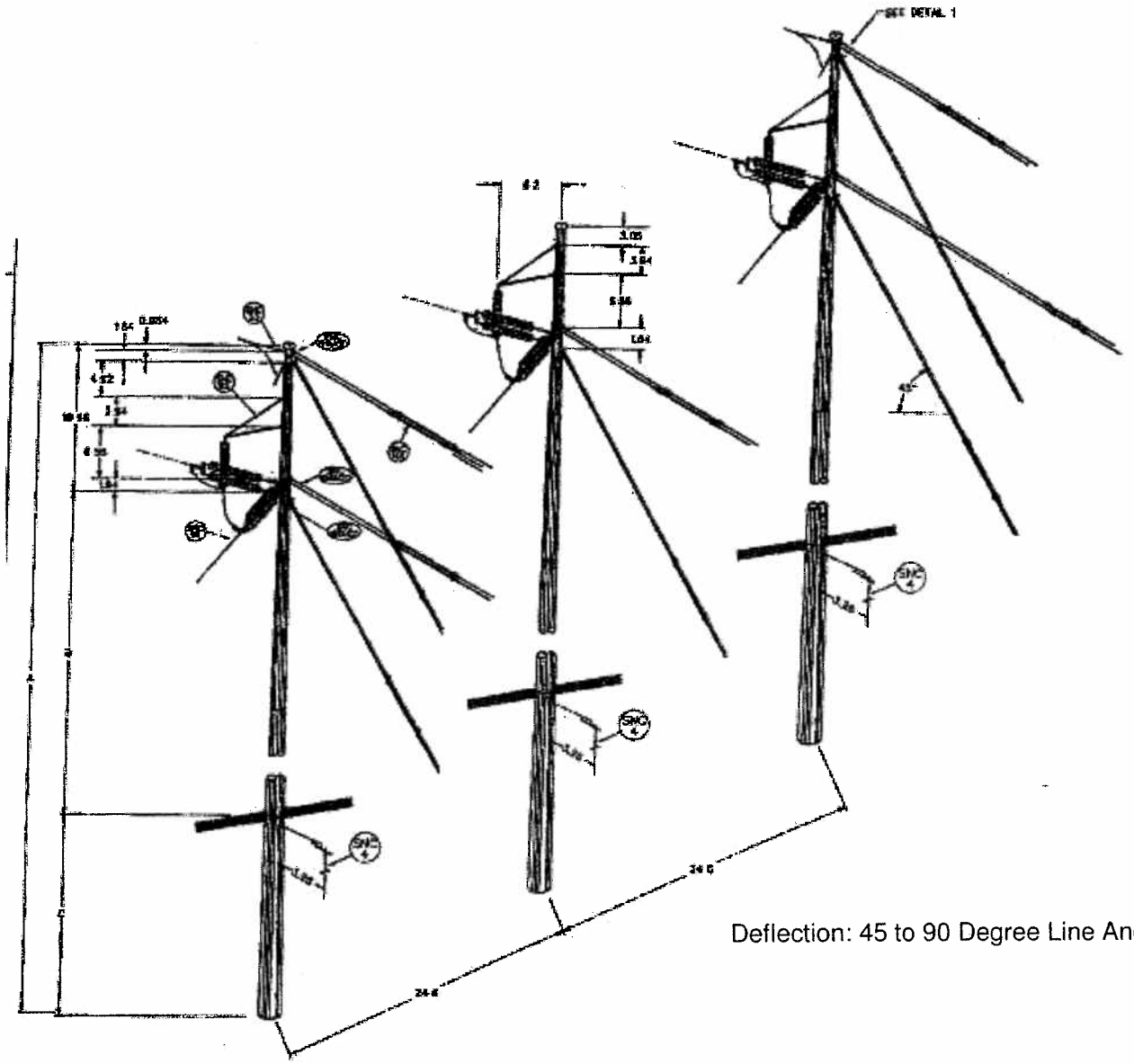
Figure 5-1
240kV H-Frame Tangent Structure



H-Frame ROW Detail		
Pole Location	ROW Distance (feet)	Safety Zone Distance (feet)
County Road ROW	30.9	30
Outside County Road ROW	37.46	30
Through Farmers Field	45	30 (either side of ROW)

Pole Dimensions		
A	B	C
55	37.3	9.5
60	41.8	10
65	46.3	10.5
70	50.8	11
75	55.3	11.5
80	59.8	12
85	64.3	12.5
90	68.8	13

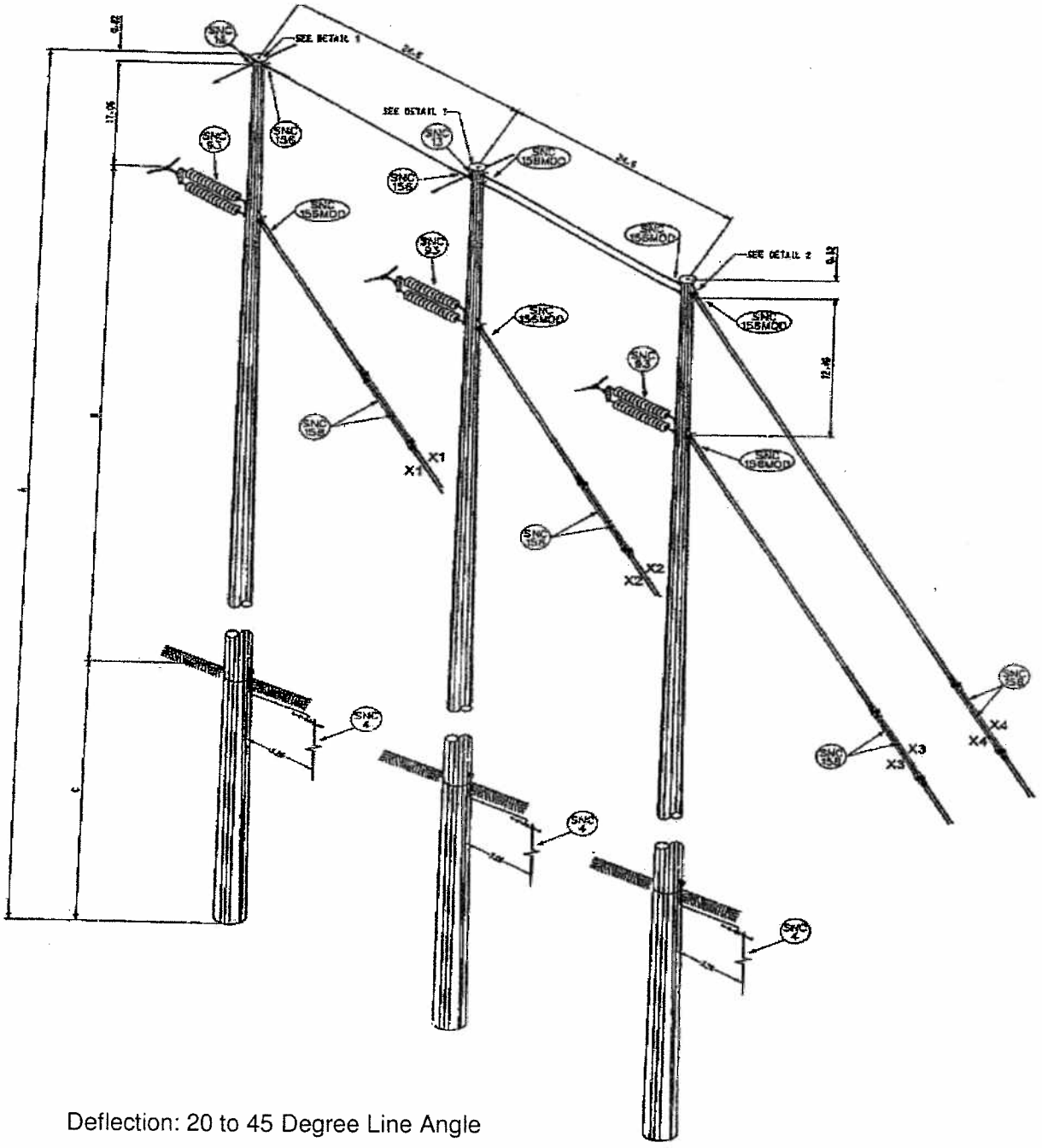
Figure 5-2
240kV H-Frame Light Angle Structure



Deflection: 45 to 90 Degree Line Angle

Pole Dimensions		
A	B	C
60	30.62	10
65	34.82	10.5
70	39.32	11
75	43.82	11.5
80	48.32	12

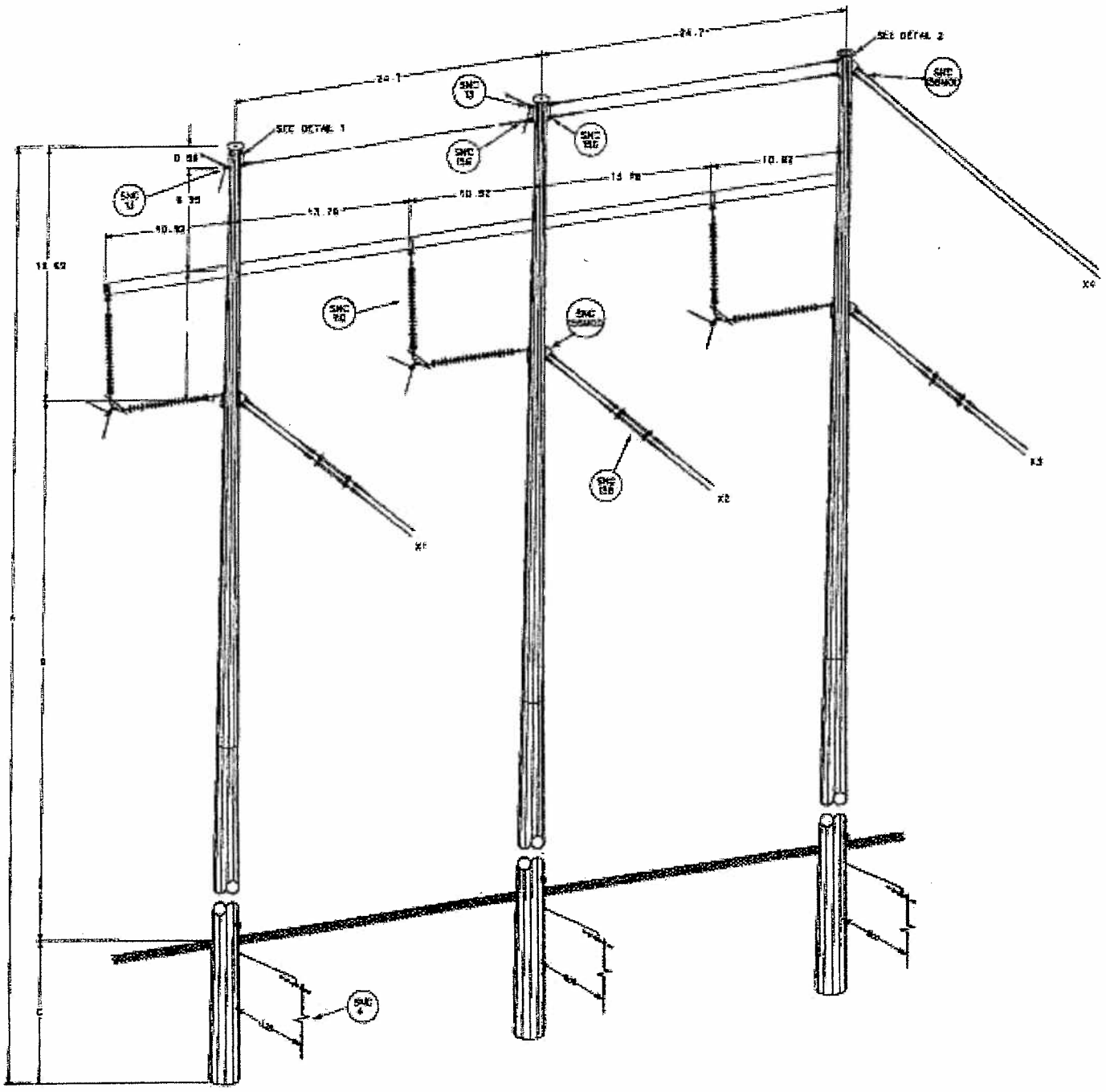
Figure 5-3
240kV Three Pole Dead-End Structure



Deflection: 20 to 45 Degree Line Angle

Pole Dimensions		
A	B	C
65	36.62	10.5
70	41.12	11
75	45.62	11.5
80	50.12	12
85	54.62	12.5

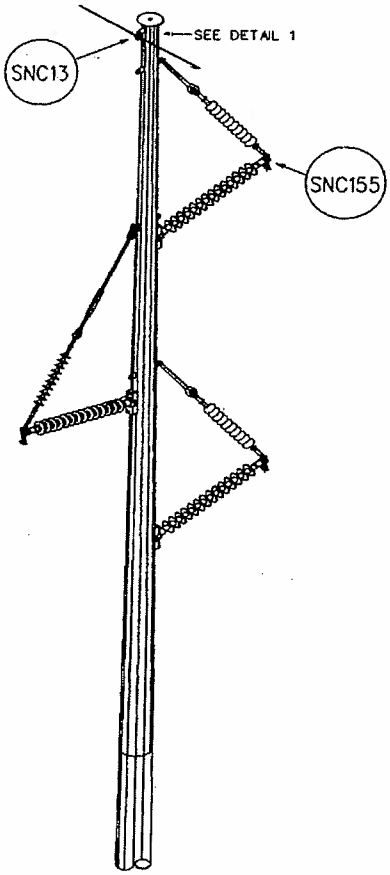
Figure 5-4
240kV Three Pole Heavy Angle Structure

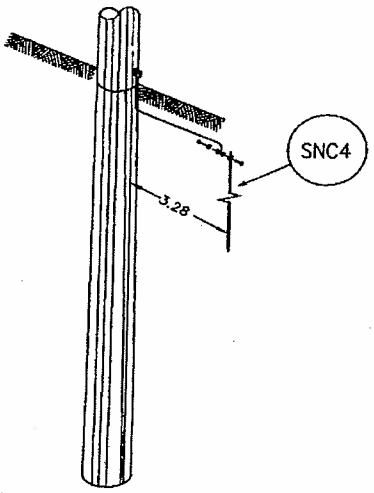


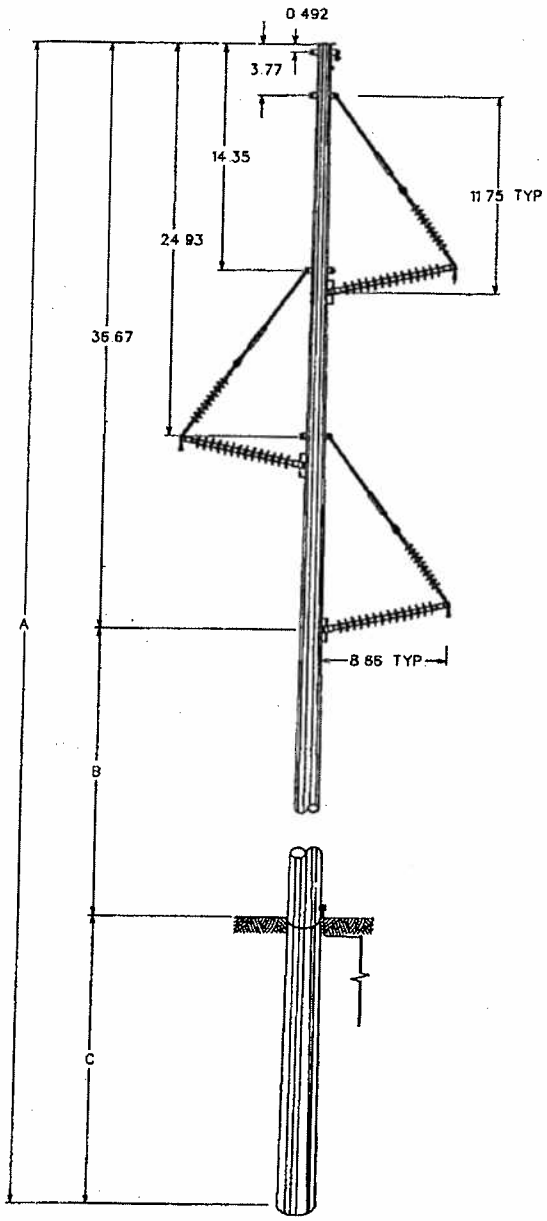
Deflection: 5 to 20 Degree Line Angle

Pole Dimensions		
A	B	C
75	48.78	11.5
80	51.28	12
85	55.81	12.5
90	80.3	13

Figure 5-5
240kV Three Pole Medium Angle Structure



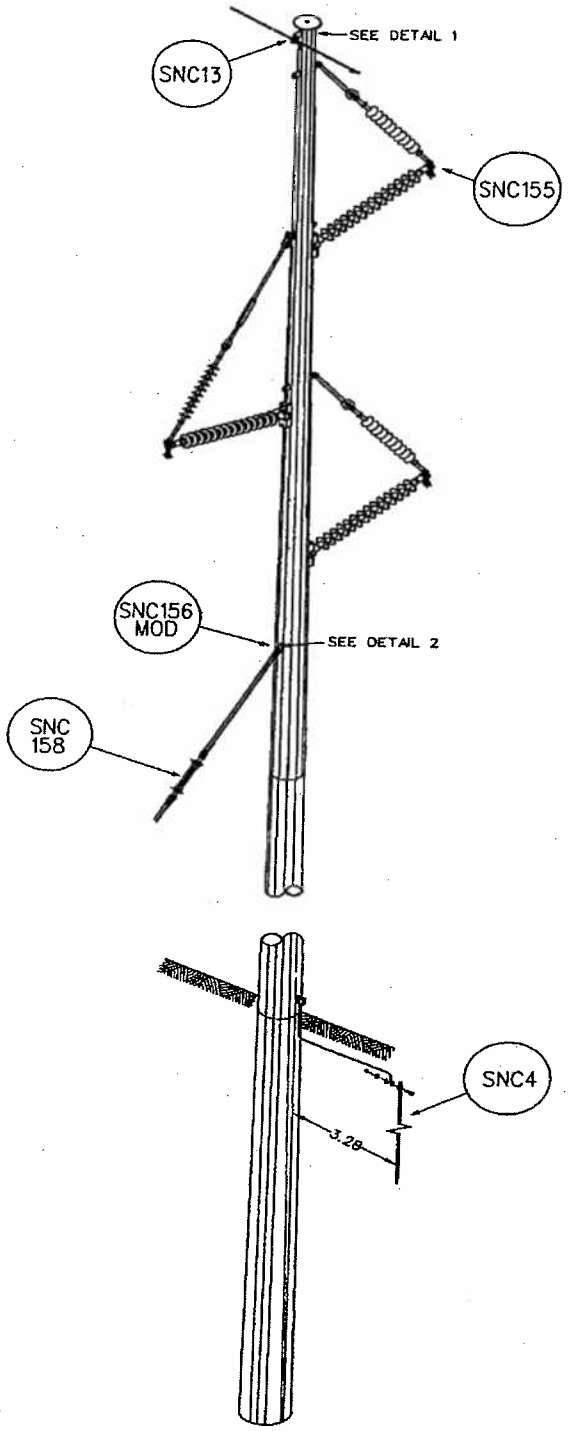


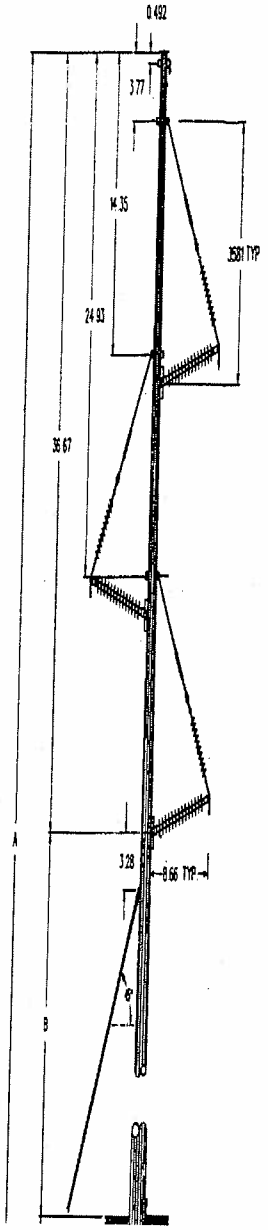


Single Pole ROW Detail		
Pole Location	ROW Distance (feet)	Safety Zone Distance (feet)
County Road ROW	6.72	20
Outside County Road ROW	13.28	20
Through Farmers Field	20	20 (either side of ROW)

Pole Dimensions		
A	B	C
80	31.28	12
85	35.78	12.5
90	40.28	13
95	44.78	13.5
100	49.28	14

Figure 5-6
240Kv Monopole Tangent Structure





Single Pole ROW Detail		
Pole Location	ROW Distance (feet)	Safety Zone Distance (feet)
County Road ROW	6.72	20
Outside County Road ROW	13.28	20
Through Farmers Field	20	20 (either side of ROW)

Pole Dimensions		
A	B	C
80	31.28	12
85	35.78	12.5
90	40.28	13
95	44.78	13.5
100	49.28	14

Figure 5-7
240kV Monopole Light Angle Structure

APPENDIX C:
MATL NOXIOUS WEED CONTROL PLAN

THIS DOCUMENT IS INCLUDED AS APPENDIX N TO THE MATL MFSA APPLICATION

Montana Alberta Tie Ltd.
230-kV Transmission Line Project from Lethbridge, Alberta to Great Falls, Montana

APPENDIX N

Noxious Weed and Invasive Plant Control Plan

DRAFT- June 2006

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9.0 Reporting **8**
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Table 1-1 Designated Noxious Weeds of Montana 2

1.0 Introduction

This plan was developed to identify noxious weed and invasive plant control practices that would be implemented for the US portion of the Montana Alberta Tie Ltd (MATL) 230-kV transmission line project from the Canadian border to Great Falls, Montana. A noxious weed is a weed arbitrarily defined by law as being especially undesirable, troublesome, or difficult to control. Invasive plants are alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health (USFR 1999). Equipment and supplies necessary for construction and future operation and maintenance (O&M) activities, and the activities themselves, are possible agents for the spread of noxious and invasive plants (Sheley and others, 1999). Construction and maintenance vehicles can potentially carry seeds into the project area, and from one part of the area to another. The risk of establishing a weed and invasive plant community increases with ground disturbing maintenance activities (Sheley and others, 1999).

Executive Order 13112 requires that each federal agency 1) prevent the introduction and spread of invasive species, 2) detect and respond rapidly to control such species, 3) monitor invasive species populations, and 4) provide for restoration of native species and habitat conditions in ecosystems that have been invaded (USFR 1999). The Montana County Weed Control Act (Title 7, Chapter 22 Part 21) provides for weed management at the county level. The law requires counties to develop a long-term management plan for the control of noxious weeds in their county.

Table 1-1 below provides a summary of the categories of noxious weeds identified in the state of Montana's Weed Management Plan along with each weed's reported distribution within the six project area counties; Glacier, Toole, Pondera, Teton, Cascade and Chouteau Counties.

Table 1-1 Designated Noxious Weeds of Montana

Category 1 – Widespread Noxious Weeds*	
Canada Thistle (*Cirsium arvense*)	Reported in All Project Area Counties
Field Bindweed (*Convolvulus arvensis*)	Reported in All Project Area Counties
Leafy Spurge (*Euphorbia esula*)	Reported in All Project Area Counties
Russian Knapweed (*Centaurea repens*)	Reported in All Project Area Counties
Spotted Knapweed (*Centaurea maculosa*)	Reported in All Project Area Counties
Whitetop or Hoary Cress (*Cardaria draba)*	Reported in All Project Area Counties except Glacier County (historically present)
Diffuse Knapweed (*Centaurea diffusa*)	Reported in Teton, Cascade and Chouteau Counties

Dalmatian Toadflax (*Linaria dalmatica*)	Reported in All Project Area Counties
St. Johnswort (*Hypericum perforatum*)	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Teton County.
Sulfur (Erect) Cinquefoil (*Potentilla recta*)	Reported in Glacier, Pondera, Cascade and Chouteau Counties. Historically present in Toole County.
Common tansy (*Tanacetum vulgare*)	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Toole and Pondera Counties.
Ox-eye Daisy (*Chrysanthemum leucanthemum* L.)	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Pondera and Teton Counties.
Houndstongue (*Cynoglossum officinale* L.)	Reported in All Project Area Counties
Yellow toadflax (*Linaria vulgaris*)	Reported in All Project Area Counties
Diffuse Knapweed (*Centaurea diffusa*)	Reported in All Project Area Counties
Category 2 – Established New Invaders*	
Dyers Woad (*Isatis tinctoria*)	Historically present in Pondera and Chouteau Counties, but not currently reported.
Purple Loosestrife or Lythrum (*Lythrum salicaria*, *L virgatum*, and any hybrid crosses thereof).	Reported in Pondera and Cascade Counties. Historically present in Toole County.
Tansy Ragwort (*Senecio jacobea* L)	Not reported in any Project Area County.
Meadow Hawkweed Complex (*Hieracium pratense*, *H. floribundum*, *H. piloselloides*)	Historically present in Pondera and Chouteau Counties.
Orange Hawkweed (*Hieracium aurantiacum* L.)	Not reported in any Project Area County.
Tall Buttercup (*Ranunculus acris* L.)	Reported in Glacier County. Historically present in Teton County.
Tamarisk [Saltcedar] (*Tamarix* spp.)	Reported in Cascade and Chouteau Counties. Historically present in Teton County.
Perennial pepperweed (*Lepidium latifolium*)	Reported in Toole, Pondera, Teton, Cascade and Chouteau Counties.
Category 3 – Non-Established New Invaders*	
Yellow Starthistle (*Centaurea solstitialis*)	Not reported in any Project Area

	County.
Common Crupina (*Crupina vulgaris*)	Not reported in any Project Area County.
Rush Skeletonweed (*Chondrilla juncea*)	Not reported in any Project Area County.
Eurasian watermilfoil (*Myriophyllum spicatum*)	Not reported in any Project Area County.
Yellow flag iris (*Iris pseudacoru)*	Reported in Cascade County.

**As reported in the 2005 update of the Montana Weed Management Plan*

2.0 Plan Purpose

The weed control plan is part of the overall restoration program. The overall goal of the restoration program is to preserve the native plant species, community, and functioning ecosystem within the Project Study Area. The purpose of this weed control plan is to prevent and control the spread of noxious weeds and invasive plants during and following construction of the proposed project. MATL and its contractors will be responsible for carrying out the methods described in this plan. Reasonable alternatives may be substituted or methods employed to the extent agreed upon jointly by MATL and the State Inspector (or DEQ personnel).

The Noxious Weed and Invasive Plant Control Plan will implement preventative measures to keep construction sites within the Project Study Area free of species that are not yet established there but which are known to be pests elsewhere in the region. The Plan will set priorities for the control or elimination of weeds that have already established on the site, according to their actual and potential impacts on native species and communities, particularly on our conservation targets. MATL and its contractors will take action only when careful consideration indicates leaving the weed unchecked will result in more damage than controlling it with available methods. This strategy will be developed in coordination with the BLM, State of Montana and the impacted County Weed Districts (Glacier, Pondera, Teton, Chouteau, and Cascade Counties). The focus of MATL's noxious weed and invasive plant control efforts will be to prevent the spread of new populations resulting from project activities, and to assist landowners in their weed control responsibilities by reducing or eliminating existing infestations in the project area. Without concurrent control of weed infestations by landowners on surrounding lands, weed control efforts in the project area by MATL will likely be unsuccessful.

3.0 Objectives

For the project area, the objectives of noxious weed and invasive plant control are: 1) to acquire information on the occurrence, distribution and abundance of noxious weeds and invasive plants in the project area prior to construction, 2) to reduce or eliminate existing infestations and prevent the spread of new and existing populations of noxious weeds and invasive plants within the project area to the extent feasible for the life of the project following each construction phase, 3) to ensure any populations of rare plants within the project area are not negatively impacted by control activities, and 4) to coordinate and consult with designated BLM, State of Montana and County weed personnel regarding all noxious weed control activities conducted by MATL to ensure compatibility with existing weed control protocol.

4.0 Weed Control Area

The area for noxious weed and invasive plant control (hereafter referred to as the 'weed control area') includes all lands disturbed by construction activities plus a 30-foot buffer area around disturbances. Newly constructed roadways, where needed, are expected to be about 14 feet wide with varying widths of cut and fill slopes. To buffer all disturbed areas it is estimated that the 'weed control area' will consist of an approximately 100-foot corridor along all roadways and tensioning sites that are used for construction, and all lands within 50 feet of each new transmission line structure. MATL will assume responsibility to control noxious and invasive plants in the weed control area.

5.0 Pre-Construction Surveys

Noxious weed and invasive plant inventories in the project area will be conducted by MATL-designated botanists who are familiar with the taxonomic characteristics and typical habitat preferences of noxious weeds and invasive plants. Prior to construction, surveys will be conducted along existing and proposed new roads to be used for the project, structure locations, pulling and tensioning sites, staging and laydown areas, excavated sites, and other construction sites along the ROW. The Project area will be divided into small survey units (e.g., one or more segments between transmission line structures, including transmission line structure locations) and botanists will record all noxious weed and invasive species present within the survey unit.

Relative abundance of each noxious weed and invasive plant will be recorded for the following three zones (including travelways in and out of the three zones):

- Zone 1: Immediately on the existing or proposed disturbed sites (e.g., roadbeds, structure locations, cut/fill slopes);
- Zone 2: within 30 feet of disturbances, and

- Zone 3: in the general area greater than 30 feet from disturbances.

Ground surveys will be conducted in Zones 1 and 2; Zone 3 will receive a reconnaissance-level survey based on what is visible adjacent to the 30 ft buffer. Relative abundance of noxious and invasive plant species found in surveyed areas will be recorded. The project botanist will identify locations of any rare plant species that could potentially be affected by control activities and identify conditions necessary to avoid adverse impacts to these locations.

Maps illustrating noxious weed and invasive species abundances in survey units will be produced at an appropriate scale to assist with monitoring and control activities. Other ancillary thematic layers will also be plotted on the maps to assist with navigation and planning.

The dates of all pre-construction surveys will be coordinated with designated BLM, State of Montana, and weed boards/coordinators in Glacier, Pondera, Teton, Chouteau, and Cascade Counties. It is MATL's intent to conduct the survey at an appropriate time in the growing season to positively identify targeted noxious weeds and invasive species and to establish baseline conditions for future control activities. It is anticipated that the pre-construction survey will occur in late summer 2006.

6.0 Noxious Weed Management

Weeds and invasive species are spread by a variety of means including humans (e.g., workers, hikers and recreationalists, etc.), vehicles, construction equipment, construction and reclamation materials, livestock, and wildlife. Implementation of preventive measures to control the spread of noxious weeds and invasive plants is the most cost-effective management approach.

7.0 Preventive Measures

The following preventive measures would be implemented to prevent the spread of noxious/invasive plants during construction and future O&M activities:

1. Prior to construction, the construction contractor will be trained on methods for cleaning equipment, identification of problem plant species in the project area, and procedures to follow when an invasive or noxious weed is located. To assist in identification, the contractor will be supplied with a list and pictures of noxious and invasive species that may exist within the project area.
2. Prior to any construction disturbance, all known weed populations will be flagged so that they may be avoided.
3. Prior to entering the project area, vehicles and construction equipment will be cleaned (pressure wash or forced air) of all mud, dirt, and plant parts where there is a potential to import weeds. This will be done to

remove weed seed that may be attached to this equipment. Washing will occur at designated sites (i.e., construction yards), that include appropriate containment systems.

4. Equipment, materials, and vehicles will be stored at specified work areas or construction yards. All personal vehicles, sanitary facilities, and staging areas will be confined to a limited number of specified weed-free locations to decrease chances of incidental disturbance and spread of noxious weeds and invasive plants.
5. Disturbed areas will be promptly seeded following completion of construction activities to reduce the potential for the spread and establishment of noxious weeds and invasive plants. Seeding should occur as soon as possible following construction and during the optimal time period. Landowners will be contacted and asked to, if possible, refrain from grazing or moving cattle through populations of noxious weeds and newly planted areas. Only county/state-approved mixtures of certified "weed-free" seed will be used. All other introduced construction materials used for the Proposed Project, such as straw and fill, shall also be weed-free.
6. To limit new or improved accessibility into the area by OHVs and other motorized vehicles, all new access roads undesired or not required for maintenance would be controlled in accordance with management directives of BLM, State of Montana, and private landowners.

8.0 Control Measures

If pesticides are used in the project area, an integrated pest management plan would be developed to ensure that applications will be conducted consistent with BLM and Department of Interior (DOI) policies.

Assuming the project will begin construction in late 2006 or early 2007, MATL will flag all known noxious/invasive plants (for avoidance) prior to the time of construction (e.g., September 2006) to prevent the spread of existing populations found in the designated weed control area. Following construction, annual spraying will begin, likely during the months of May and June; however the potential for fall treatment does exist for some species. Annual spraying will continue as necessary to control noxious/invasive plants in the weed control area for the life of the Proposed Project.

Using the prior years' survey information, annual spraying will be planned by MATL and coordinated with BLM, the State of Montana, and County weed coordinators/boards to ensure spraying will be conducted at the proper growing period, during favorable environmental conditions, and will use the appropriate chemicals to control targeted species. The chemicals used must be approved for use.

Only EPA-registered pesticides will be used. Pesticide use shall be limited to nonpersistent, immobile pesticides and will be applied in accordance with label and application permit directions. Spraying will be conducted using a qualified contractor as deemed appropriate by MATL and in consultation with designated BLM personnel, State of Montana personnel, and County weed coordinators/boards. The applicator used must possess a Montana State Pesticide Applicators License. Rather than broad application, the intent of applying herbicide will be to treat only designated areas.

It is anticipated that most spraying will be conducted using ATV-mounted spray equipment, supported by one or more four-wheel drive pickups equipped with water tanks. Pickups will carry necessary chemicals, fluid pumps, tools, and water to provide a base station for refilling of ATV spray tanks. Spraying infestations within the weed control area will be conducted by ATV, using hand-held spray guns with 25 to 50 foot hoses attached to spray tanks or by using 8 to 12 foot spray booms. The spray booms will be utilized for treating larger areas on roadbeds and on gentle to moderately steep terrain. All spraying equipment shall be calibrated to ensure the proper rate of herbicide is applied.

Following annual spraying, a monitoring survey will be conducted to verify locations of noxious weeds and invasive plants in the project vicinity. These monitoring surveys are expected to occur in the late summer/early fall (August-September) and will be conducted using MATL's-designated botanist personnel in the same manner described for the pre-construction surveys.

9.0 Reporting

Beginning with the fall/winter of 2007 (November 2007 to February 2008), MATL will prepare and submit a status report to designated federal, state and county personnel regarding the previous years' weed control activities. The winter 2007 report will detail baseline conditions regarding the occurrence, distribution, and abundance of listed species located in the project area, weed control activities accomplished to date, and expected activities for the following year. Each subsequent years' report will 1) detail the current status of noxious weed and invasive plant occurrence, distribution and abundance, 2) summarize activities conducted in the project area during previous years, and 3) outline projected activities for the following year. This will include timing of surveys, herbicide treatments, amount and types of chemicals applied, and a list of participants and their activities. These reports will continue annually from winter 2007 for the life of the project, or as required by designated federal, state and county personnel to ensure long-term noxious/invasive plan control measures are met in the weed control area.

10.0 References

Montana Department of Agriculture. 2005. Montana Noxious Weed List. Montana Dept. of Agriculture, Helena, Montana. Available at http://agr.state.mt.us/weedpest/noxiousweedslist2.asp.

Sheley, R.L., Manoukian, M., and G. Marks. 1999. "Preventing Noxious Weed Invasion," pages 69-72 in, R.L. Sheley and J.K. Petroff, editors. Biology and Management of Noxious Rangeland Weeds. Oregon State University Press, Corvallis, OR.

USFR (U.S. Federal Register). 1999. "Presidential Document, Executive Order 13112. Invasive Species," Federal Register 64:6183-6186.

APPENDIX D:
DRAFT MATL RECLAMATION AND REVEGETATION PLAN

THIS DOCUMENT IS INCLUDED AS APPENDIX O TO THE MATL MFSA APPLICATION

Montana Alberta Tie Ltd.
230-kV Transmission Line Project from Lethbridge, Alberta to Great Falls, Montana

Appendix O

Revegetation and Reclamation Plan

DRAFT

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1. Overview

As part of its MFSA Application, MATL has prepared a draft Revegetation and Reclamation Plan as Appendix K to the "DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL)" report. The plan is required to specify, at a minimum, seeding mixtures and rates, and procedures to abide by the requirements of ARM 17.20.1902(10). This rule states that following construction work in rangeland areas, the coverage of desirable perennial plant species shall be 30% or more of that of adjacent rangeland of similar slope and topography the year following revegetation, and 90% or more of the coverage of similar adjacent lands within five years. In forested lands, revegetated land other than that in the right-of-way or permanent access roads will be planted with trees so that after five years the stand density of the adjacent forest will be attained at maturity.

This plan also provides the framework to satisfy any identified landowner specifications for their property, as well as any necessary requirements of the General Permit for Storm Water Discharges Associated with Construction Activity, Montana Department of Natural Resources and Conservation requirements for an easement and construction on State lands, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service and state and county requirements for mitigation associated with construction impacts to waters of the US and the state including streams and wetlands.

2. Objectives

The short term objectives of reclamation are to control erosion and sedimentation, thereby minimizing impacts on adjacent lands and waterways. Properly timed and executed construction practices will mitigate short-term impacts. Long term objectives include erosion and sedimentation control, reclamation of topography, soils and vegetation to a condition equal to that existing prior to disturbance, and reclamation of lands to productive uses consistent with that existing prior to disturbance and applicable land management policies. These objectives will be attained by adherence to practices outlined in the DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL) document, as well as practices outlined in this reclamation and revegetation plan to the extent feasible (Appendix K to that document). Reasonable alternatives may be substituted or methods employed to the extent agreed upon jointly by MATL and the State Inspector (or DEQ personnel).

3. Reclamation

Clearing, Grading, and Topsoil Handling: Per the standards identified in the "DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL)"

report, soil disturbance and earth moving will be kept to a minimum and will follow typical procedures to minimize impacts and enhance reclamation. In addition, right-of-way clearing shall be kept to the minimum necessary to meet the requirements of the National Electric Safety Code.

The permanent easement and temporary work space (the construction right-of-way) will be sized to provide space for all construction activities including temporary storage of any graded material and salvaged topsoil. To prevent wind erosion and facilitate reclamation, the roots of existing vegetation will be retained in place to the extent practical.

In any areas where topsoil must be temporarily removed, a minimum of 3 inches and a maximum of 12 inches of topsoil will be salvaged. Topsoil is defined as an upper layer of the soil, composed primarily of a mixture of organic matter and mineral matter; it is alive with microscopic and small macroscopic organisms (McKinney and Schoch 2006). Topsoil will not be mixed or stored with spoil material. In addition, topsoil will not be stripped during excessively wet or inordinately windy conditions.

Following any necessary clearing for work space, these areas will be graded as necessary to create a level work surface for the passage of heavy construction equipment and other vehicles. Any areas graded during construction will be re-graded to reestablish pre-disturbance landforms. Every reasonable effort will be made to complete final grading and installation of permanent erosion control measures as soon as practicable following construction. All disturbed areas (including temporary access roads and other ancillary facilities) will be returned to pre-excavation grades with allowance for settling. If any discontinuity between natural topography and re-graded ground results, MATL will undertake additional grading work to smooth the transition zone. The elevation of the re-graded right-of-way will not be lower than the natural grade.

For disturbed areas where topsoil was removed, redistribution depths will vary between 3 and 12 inches depending upon depth of topsoil stripped. Topsoil will not be mixed with spoil material at any time during soil handling operations and to the extent practical only topsoil will be re-spread on the surface. Topsoil from un-stripped areas will not be utilized to cover adjacent disturbances.

In addition:

- All garbage and debris will be removed from the re-graded areas before topsoil is replaced.
- Any excess rock not buried or blended with the natural terrain will be disposed of at an approved location.

- The length of time that topsoil is stored will be minimized based on the proposed construction schedule. Topsoil redistribution will begin immediately after re-grading (weather permitting).
- Replaced topsoil will be left in a roughened condition to discourage wind and water erosion. Additional erosion control and soil stabilization may be required on steeper slopes, on topsoil easily transported by wind, etc.
- If it is necessary to alleviate compaction, rutting or crusting prior to seeding, the replaced topsoil will be worked with a harrow, disc, spring, tooth, chisel plow or similar implement.
- Fertilization is not recommended since soil will only be stockpiled for a short period of time and fertilizer may enhance weed growth.

In addition, agricultural areas occupied during construction will be ripped, as necessary, in order to remediate compaction. This effort will be sufficient to relieve compaction to its actual depth.

4. Revegetation

In general, revegetation will be conducted on the right-of-way and at other disturbed areas (temporary access roads, staging areas) to restore vegetative cover that is similar to pre-construction condition, or if requested, meet any other reasonable landowner requests once site work is completed. Disturbed areas will be reclaimed by appropriate contouring and replanting with an approved seed mix. All seed mixtures will be certified "weed free". Noxious weeds will be controlled through implementation of a Noxious and Invasive Plant Control Plan (Appendix F to the "DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL)" report, which will be approved, before construction, by the county weed boards affected by the project bounds.

5. Description of Existing Vegetation

Agriculture dominates land use within the Project Study Area and is interspersed with patches of non-farmland mostly in the form of low to moderately covered grasslands. In upland communities not converted to dryland farming such as rangeland, coulees, and slopes, the dominant grass communities include grama (*Bouteloua* spp.)-needlegrass (*Stipa* spp.) and wheatgrass (*Agropyron* spp.), and wheatgrass-needlegrass (Kuchler 1964). North of Cut Bank toward the Canadian border where the Foothill Grassland and Milk River Pothole Upland ecoregions exist, the natural vegetation is characterized by blue grama grass, wheatgrass, and, to a lesser extent, June grass (*Koelaria* spp.). A variety of shrubs and herbs also occur, but sagebrush (*Artemesia cana* and *Artemesia tridentata*) are most abundant, and on drier sites yellow cactus and prickly pear (*Opuntia* spp.) can be found. Saline areas support alkali grass (*Puccinellia* spp.), wild barley (*Hordeum* spp.), greasewood (*Sarcobatus*

vermiculatus), saltwort (*Salicornia rubra*) and Pursh seepweed (*Suaeda calceoliformis*). Land that has been converted from dryland farming into the Conservation Reserve Program (CRP) is dominated by wheatgrass (*Agropyron* spp.), alfalfa (*Medicago* spp.), clover (*Trifolium pratense*) and annual weeds (e.g. *Tragopogon dubius*).

The Marias and Teton rivers support the most significant forested riparian habitats in the Project Study Area. Riparian habitats along the Marias and Teton rivers include oxbow marshes and shrub-dominated terraces, but the defining feature is the cottonwood gallery forest that lines the rivers. Despite the fact that these riparian cottonwood forests have been reduced and fragmented by conversion of the floodplain to irrigated agriculture and pasture, they remain the only significant forested habitat within the Project Study Area. The width of the cottonwood gallery forest varies between 30 and 500 feet.

6. Revegetation Mixtures

Revegetation seed mixtures will be agreed upon by MATL and DEQ personnel prior to any revegetation activities taking place on disturbed areas.

Species Selected: Selection of adapted plant species for revegetation is primarily based on existing species occurrence on adjacent lands, and community compositions. Consideration will also be given to establishment potential, growth characteristics, soil stabilizing qualities, availability of seed, and landowner and agency recommendations. MATL will utilize revegetation mixtures based on inventories and knowledge of vegetative types based on field visits conducted to date, and based on any specific recommendations made by the county weed boards.

Species Composition and Rates: The use of native graminoids will be emphasized throughout much of the project area. If noxious weeds invade revegetated areas, control measures, identified in consultation with the county weed board, would be initiated. If any revegetation is required in riparian areas containing woody plants, MATL will plant native shrubs and trees in these locations.

Final seeding and planting rates and species composition will be determined through consultation with DEQ, county weed board members, and land managers on any public lands crossed. Unless otherwise appropriate, approximately 20 pounds per acre of a mix of grasses and forbs seeds should be planted using the broadcast method. A post-seeding pass with a cultipacker would ensure adequate contact of the seed with the soil.

Reseeding will take place in the first appropriate season (Spring or Fall) after construction and at the landowners' discretion. Seeds are best planted in the spring. Seeds planted in the fall are going to be more susceptible to frost-heave and being eaten by rodents. Weed control is also less effective in the fall. Areas disturbed by the Project that supported native vegetation will be revegetated with native species.

Plant Materials: Typically, plant material dealers providing commercial seed will be encouraged to supply seed of local origin. Seed will be purchased in accordance with pure live seed specifications for seed mixtures, emphasizing the use of weed-free certified seed. All seed will be tested to ensure it is noxious weed-free. Seed certification/testing tags will be submitted to DEQ or the counties if requested. Seed will be utilized within 12 months of testing. Containerized or bare root stock will be utilized for native shrub or tree plantings and local stock will be utilized if available.

Seeding Methods: Soil will be conditioned to prepare a good seedbed., Seed will be broadcast utilizing manually operated bucket spreaders, mechanical seed spreaders, blowers or hydroseeders. Seed will be mixed frequently in spreader hoppers to discourage settling. Seeded areas will be chained, harrowed or cultipacked to cover the seed and provide better seed/soil contact. On any areas of steeper slopes, broadcast seeded or hydroseeded areas will be dozer tracked perpendicular to the slope to provide for better seed germination. When hydroseeding is used, seed and mulch will be sprayed in one application. On small areas of revegetation or inaccessible sites, seed will be covered via hand raking.

Construction schedules and seasonal conditions will impact revegetation activities. Seeding and planting will occur as soon after seedbed preparation as possible, either in the fall or spring. Spring seeding, if required, will be conducted as early as possible to maximize the benefits of spring soil moisture.

Planting Methods: In disturbed areas where native shrub or trees need to be planted, MATL will typically utilize stock located as close to the project area as possible. Topsoil salvaged from construction disturbance (assuming no noxious weeds are present) will also be utilized to help promote the re-establishment of existing plant communities.

Tree and shrub planting procedures will follow guidelines set forth in US Forest Service Reforestation Handbook (See FSH 2409.26b, Chapter 700).

7. Erosion Control

In accordance with requirements of the General Permit for Storm Water Discharges Associated with Construction Activity, erosion and sediment control measures will be implemented at disturbed areas to minimize soil movement and improve the potential for revegetation and help ensure successful reclamation. Prior to construction, MATL will prepare a Storm Water Pollution Prevention Plan as part of the application for a General Permit in order to assess the potential for storm water runoff in the areas surrounding the disturbed sites, identify sources of pollutants from the disturbed sites and identify best management practices or control measures to minimize or eliminate these pollutants from entering any surface waters. Drawings of typical techniques that MATL proposes to utilize during construction to control erosion and sediment load to streams and wetlands are presented in Attachment A of this plan (forthcoming from SNC-Lavalin).

8. Monitoring

Revegetated areas will be monitored for a period of at least five years to identify success of reestablishing vegetative cover. This includes monitoring and controlling any noxious weed introduction as discussed further in MATL's Noxious and Invasive Plant Control Plan (Appendix F to the "DEQ Environmental Specifications for Montana Alberta Tie Ltd"). Monitoring efforts identified in this plan will be coordinated with efforts set forth in Appendix F.

Per requirements of ARM 17.20.1902(10), the coverage of desirable perennial plant species will be reviewed against the standard that the revegetative cover be 30% or more of that of adjacent rangeland of similar slope and topography the year following, and 90% or more of the coverage of similar adjacent lands within five years. At the end of the five years, the vegetative cover will be surveyed and documented, and if at that time it is determined that additional monitoring and control will be necessary, DEQ and the appropriate county weed control board will be consulted to determine a plan of action.

Specifically, qualified specialists (identified by MATL) will complete quantitative monitoring on an annual basis to compare adjacent, undisturbed vegetation to the revegetated areas. Evaluation factors will include percent of total vegetative cover, percent litter cover, percent bare ground, species diversity, species composition, woody plant survival (if planted in that area), and presence of noxious weeds. Areas with poor regeneration will be evaluated to identify what reclamation techniques could be utilized to address the problem (address soil fertility, soil erosion, etc.)

9. Reporting

Beginning with the fall/winter of 2007 (November 2007 to February 2008), MATL will prepare and submit a status report to designated state personnel regarding the previous years monitoring activities. The winter 2007 report will detail baseline conditions regarding typical vegetative cover located in the project area, reclamation and revegetation activities accomplished to date, and expected activities for the following year. Each subsequent years report will 1) detail the current status of vegetative cover, as compared to adjacent land cover, 2) summarize activities conducted in the project area during previous years, and 3) outline projected activities for the following year. This effort will be coordinated with reporting requirements for Appendix F (Noxious and Invasive Plant Control Plan). These reports will continue annually from winter 2007 as required by designated state personnel to ensure long-term revegetative measures are met.

Literature Cited

McKinney, M.L. and R.M. Schoch. 2006. Environmental Science, Systems and Solutions. Third Edition. Available at http://environment.jbpub.com/mckinney/interactive_glossary_showterm.cfm?term=topsoil%20. Accessed 24 May 2006.

APPENDIX E:
DRAINAGES AND WETLAND AREAS THAT WOULD BE AVOIDED

THESE TABLES WERE PRESENTED IN THE MATL MFSA APPLICATION AS TABLES 4.5-7 AND 4.5-12

APPENDIX E-1
DRAINAGES AND WATER BODIES CROSSED NORTH TO SOUTH BY PREFFERED ALTERNATIVE A
MONTANA ALBERTA TIE LTD., LETHBRIDGE, AB – GREAT FALLS, MT

Water body	**River Miles[1]**
Red River	8.00 miles
Fitzpatrick Coulee	8.97 miles
Old Maids Coulee	4.95, 5.06 and 10.09 miles
Marias River	171.23 miles
Bullhead Creek	9.94 miles
Winginaw Coulee	0.22 miles
Ringwald Coulee	0.37 miles
Schultz Creek	21.87 miles
Dry Fork Marias River	27.59 miles
Spring Creek	4.55 miles
Pondera Coulee	95.85 miles
Railroad Coulee	3.75 miles
South Pondera Coulee	16.86, 17.15 and 17.30 miles
Brady Coulee	3.83 miles
Rocky Coulee	16.15 miles
Teton River	96.04 miles
Hunt Coulee	2.17 miles
Kinley Coulee	6.34 miles
Unnamed Stream	1.36 miles
Timber Coulee	16.58 miles
Unnamed Stream	3.11 miles
Huntley Coulee	25.21 miles

[1] Source: Montana Fish, Wildlife, and Parks. River miles listed are the point locations at which the alternative would cross the particular water body. River miles are published as an aid to people using the river for commerce, recreation and emergency services. As one travels upstream, the numbers increase until the last listed mile of the navigation map. If multiple river miles are listed then the alignment crosses that particular water body multiple times.

APPENDIX E-2
LINEAR MILES OF WETLANDS ALONG THE TRANSMISSION LINE ALTERNATIVES
MONTANA ALBERTA TIE, LTD., LETHBRIDGE, AB – GREAT FALLS, MT

	Preferred Alternative A	**Alternative B**	**Alternative C**	***Western Alt. Segment***	***Eastern Alt. Segment***
Wetland Class	**Length (Miles)**	**Length (Miles)**	**Length (Miles)**	***Length (Miles)***	***Length (Miles)***
L2ABF	0.00	0.00	0.00	*0.00*	*0.00*
L2USA	0.00	0.00	0.00	*0.00*	*0.00*
L2USAd	0.00	0.00	0.00	*0.00*	*0.00*
PABF	0.00	0.01	0.00	*0.00*	*0.00*
PABFh	0.09	0.09	0.09	*0.00*	*0.00*
PABFx	0.00	0.00	0.00	*0.00*	*0.00*
PEMA	0.64	0.14	0.39	*0.03*	*0.11*
PEMAd	0.08	0.02	0.02	*0.00*	*0.00*
PEMAh	0.00	0.00	0.04	*0.00*	*0.00*
PEMB	0.09	0.00	0.03	*0.00*	*0.00*
PEMC	0.18	0.39	0.20	*0.15*	*0.14*
PEMCh	0.00	0.03	0.03	*0.00*	*0.00*
PEMF	0.00	0.02	0.00	*0.00*	*0.00*
PEMFh	0.00	0.02	0.00	*0.00*	*0.00*
PSSA	0.00	0.00	0.06	*0.00*	*0.00*
PUBFx	0.00	0.00	0.05	*0.00*	*0.00*
PUSA	0.02	0.00	0.00	*0.00*	*0.02*
PUSAh	0.00	0.00	0.04	*0.00*	*0.00*
R3UBH	0.00	0.03	0.04	*0.00*	*0.00*
R3USC	0.04	0.04	0.00	*0.00*	*0.00*
Total Wetlands	1.14	0.77	0.99	*0.18*	*0.27*
U	106.49	98.77	118.02	*18.32*	*18.13*
No Data	22.26	24.89	17.48	--	*0.01*
Total Length of Alternative	129.89	124.43	136.49	*18.50*	*18.41*

APPENDIX F:
Revised DRAFT DEQ ENVIRONMENTAL SPECIFICATIONS

DRAFT

Revised Draft DEQ Environmental Specifications

The following specifications have been developed by the DEQ for projects receiving a Certificate of Compliance and would become conditions to the Certificate of Compliance if it is approved.

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DRAFT

DEFINITIONS

ACCESS EASEMENT: Any land area over which the OWNER has received an easement or other permission from a LANDOWNER allowing travel to and from the project. Access easements may or may not include access roads.

ACCESS ROAD: Any travel course which is constructed by substantial recontouring of land and which is intended to permit passage by most four-wheeled vehicles.

BEGINNING OF CONSTRUCTION: Any project-related earthmoving or removal of vegetation (except for clearing of survey lines).

BOND: Performance bond to guarantee successful reclamation and revegetation of the project as allowed under 75-20-302(2),MCA

CERTIFICATE: Certificate of Compliance issued by the Department of Environmental Quality.

CONTRACTOR: Constructors of the Facility (agent of owner)

DFWP: Montana Department of Fish, Wildlife, and Parks

DNRC: Montana Department of Natural Resources and Conservation

DOT: Montana Department of Transportation

DEQ: Montana Department of Environmental Quality

LANDOWNER: The owner of private property or the managing agency for public lands.

OWNER: The owner(s) of the facility, or the owner's agent.

SENSITIVE AREA: Area which exhibits environmental characteristics that may make it especially susceptible to impact from construction of a transmission facility. The extent of these areas is defined for each project but may include any of the areas listed in Circular MFSA-2 Sections 3.2(1)(d) and 3.4(1).

SHPO: State Historic Preservation Office

STATE INSPECTOR: DEQ employee or DEQ designee with the responsibility for monitoring the OWNER's and contractor's compliance with terms and conditions of the Certificate of Compliance issued for a project.

DRAFT

INTRODUCTION

The purpose of these specifications is to ensure mitigation of potential environmental impacts during the construction, operation and maintenance of a transmission facility.

For non-exempt facilities, the Montana Major Facility Siting Act supersedes all state and local environmental permit requirements except for those dealing with air and water quality, public health and safety, water appropriations and diversions, and easements across state lands (75-20-103 and 401, MCA). A major purpose of these conditions is to ensure that the intent of the laws which are superseded is met, even though the procedures of applying for and obtaining permits from various state agencies are not. As specified later in this document, the STATE INSPECTOR will have the responsibility for arranging reviews and inspections by other state agencies, which would otherwise have been done through a permit application process.

Appendices A through Q refer to the site-specific concerns and areas that apply for a specific project. These addenda, as needed, will be prepared by DEQ working in consultation with the OWNER prior to the start of construction. If these specifications conflict with MATL's proposal (WAPA Standard 13), more environmentally protective of the two would apply.

0.0 GENERAL SPECIFICATIONS

0.1. SCOPE

These specifications apply to all lands affected by the project. Where the LANDOWNER requests practices other than those listed in these specifications, the OWNER may authorize such a change provided that the STATE INSPECTOR is notified in writing of the change and that the change would not be in violation of: (1) the intent of any state law which is superseded by the Montana Major Facility Siting Act; (2) the Certificate; (3) any conditions imposed by DEQ; (4) DEQ's finding of minimum adverse impact; or (5) the regulations in ARM 17.20.1901 and 17.20.1902.

0.2. ENVIRONMENTAL PROTECTION

The OWNER shall conduct all operations in a manner to protect the quality of the environment and to reduce impacts to the greatest extent practical.

0.3. CONTRACT DOCUMENTS

These specifications shall be part of or incorporated into the contract documents; therefore, the OWNER and the OWNER'S agents shall be held responsible for adherence to these specifications in performing the work

0.4. BRIEFING OF EMPLOYEES

The OWNER shall ensure that the CONTRACTOR and all field supervisors are provided with a copy of these specifications and informed of which sections are applicable to specific procedures. It is the responsibility of the OWNER, its CONTRACTOR and the CONTRACTOR's Construction Supervisors to ensure that the

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intent of these measures is met. Supervisors shall inform all employees on the applicable environmental constraints spelled out herein prior to and during construction. Site-specific measures spelled out in the appendices attached hereto shall be incorporated into the design and construction specifications or other appropriate contract document.

0.5. COMPLIANCE WITH REGULATIONS

All project-related activities of the OWNER shall comply with all applicable local, state, and federal laws, regulations, and requirements.

0.6. LIMITS OF LIABILITY

The OWNER is not responsible for correction of environmental damage or destruction of property caused by negligent acts of DEQ employees during construction monitoring activities.

0.7. DESIGNATION OF SENSITIVE AREAS

DEQ, in its evaluation of the project, has designated certain areas along the right-of-way or access roads as SENSITIVE AREAS. The OWNER shall take all reasonable actions to avoid adverse impacts in these SENSITIVE AREAS and adopt the measures in appendix A.

0.8. PERFORMANCE BOND

To ensure compliance with these specifications, the OWNER shall submit to the State of Montana or its authorized agent a BOND or BONDS pertaining specifically to the restoration of the right-of-way and adjacent land damaged during construction and revegetation. Post-construction monitoring by DEQ will determine compliance with these specifications and other mitigating measures included herein. At the time cleanup and restoration are complete, and revegetation is progressing satisfactorily, the OWNER shall be released from its obligation for restoration. At the time the OWNER is released, a portion of this BOND or a separate BOND shall be established by the OWNER and submitted to the State of Montana or its authorized agent. This BOND shall be held for five years or until monitoring by DEQ indicates that reclamation and road closures have been adequate. The amount and bonding mechanisms for this section shall be specified by DEQ and agreed to by the OWNER under provisions established by 17.20.1902(9) as specified in Appendix B and attached. Proof of bond shall be submitted to DEQ two weeks prior to the start of construction.

0.9. DESIGNATION OF STRUCTURES

Each structure for the project shall be designated by a unique number on plan and profile maps, and a shape file, route, or geodatabase showing line, structure, and access locations submitted to DEQ. References to specific poles or towers in Appendices A through Q shall use these numbers. If this information is not available because the survey is not complete, station numbers or mileposts shall indicate locations along the centerline. Station numbers or mileposts of all angle points shall be designated on plan and profile maps.

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0.10. ACCESS

When easements for construction access are obtained for construction personnel, provision will be made by the OWNER to ensure that DEQ personnel or contractors will be allowed access to the right-of-way and to any off-right-of-way access roads used for construction during the term of the CERTIFICATE. Liability for damage caused by providing such access for the STATE INSPECTOR shall be limited by section 0.6 LIMITS OF LIABILITY.

0.11. DESIGNATION OF STATE INSPECTOR

DEQ shall designate a STATE INSPECTOR or INSPECTORS to monitor the OWNER'S compliance with these specifications and any other project–specific mitigation measures adopted by DEQ as provided in ARM 17.20.1901 through 17.20.1902. The STATE INSPECTOR shall be the OWNER's liaison with the State of Montana on construction, post-construction, and reclamation activities. All communications regarding the project shall be directed to the STATE INSPECTOR. The name of the STATE INSPECTOR can be obtained by contacting the Bureau Chief of the Environmental Management Bureau, Permitting and Compliance Division, Department of Environmental Quality, or the Bureau Chief's successor (see Appendix P).

1.0. PRE-CONSTRUCTION PLANNING AND COORDINATION

1.1. PLANNING

1.1.1. Planning of all stages of construction and maintenance activities is essential to ensure that construction-related impacts will be kept to a minimum. The CONTRACTOR and OWNER shall, to the extent possible, plan the timing of construction, construction and maintenance access and requirements, location of special use sites, and other details before the commencement of construction.

1.1.2. Preferably thirty days, but at least fifteen days before the start of construction, the OWNER shall submit plan and profile map(s) and an electronic equivalent acceptable to the STATE INSPECTOR depicting the location of the centerline and of all construction access roads, maintenance access roads, structures, clearing backlines, and, if known, special use sites. The scale of the map for special use sites shall be 1:24,000 or larger.

1.1.3. If special use sites are not known at the time of submission of the plan and profile, the following information shall be submitted no later than five days prior to the start of construction. The location of special use sites including staging sites, pulling sites, batch plant sites, splicing sites, borrow pits, and storage or other buildings shall be plotted on one of the following and submitted to DEQ: ortho-photomosaics of a scale 1:24,000 or larger, or available USGS 7.5' plan and profile maps of a scale 1:24,000 or larger, or an electronic equivalent acceptable to the STATE INSPECTOR.

1.1.4. Changes or updates to the information submitted in 1.1.2 and 1.1.3 shall be submitted to DEQ as they become available. In no case shall a change be submitted less than five (5) days prior to its anticipated date of construction. Changes in these locations prior to construction where designated SENSITIVE AREAS are affected must be

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submitted to DEQ seven (7) days before construction and approved by the STATE INSPECTOR prior to construction.

1.1.5. Long-term maintenance routes to all points on the line should be planned before construction begins. Where known, new construction access roads intended to be maintained for permanent use shall be differentiated from temporary access roads on the maps required under 1.1.2 above.

1.2. PRE-CONSTRUCTION CONFERENCE

1.2.1. At least one week before commencement of any construction activities, the OWNER shall schedule a pre-construction conference. The STATE INSPECTOR shall be notified of the date and location for this meeting. One of the purposes of this conference shall be to brief the CONTRACTOR and land management agencies regarding the content of these specifications and other DEQ approved mitigating measures, and to make all parties aware of the roles of the STATE INSPECTOR and of the federal inspectors (if any).

1.2.2. The OWNER's representative, the CONTRACTOR's representative, the STATE INSPECTOR, and representatives of affected state and federal agencies who have land management or permit and easement responsibilities shall be invited to attend the pre-construction conference.

1.3. PUBLIC CONTACT

1.3.1. Written notification by the OWNER's field representative or the CONTRACTOR shall be given to local public officials in each affected community prior to the beginning of construction to provide information on the temporary increase in population, when the increase is expected, and where the workers will be stationed. If local officials require further information, the OWNER shall hold meetings to discuss potential temporary changes. Officials contacted shall include the county commissioners, city administrators, and law enforcement officials. It is also suggested that local fire departments, emergency service providers, and a representative of the Chamber of Commerce be contacted.

1.3.2. The OWNER shall negotiate with the LANDOWNER in determining the best location for access easements and the need for gates.

1.3.3. The OWNER shall contact local government officials, or the managing agency, as appropriate, regarding implementation of required traffic safety measures.

1.4. HISTORICAL AND ARCHAEOLOGICAL SURVEY

1.4.1. The OWNER must develop and carry out a plan submitted to the State Historic Preservation Office (SHPO) that includes steps which have been and will be taken to identify, evaluate, and avoid or mitigate damage to cultural resources affected by the project. The plan (Appendix I) shall include: (1) actions taken to identify cultural resources during initial intensive survey work; (2) an evaluation of the significance of the identified sites and likely impacts caused by the project; (3) recommended treatments or measures to avoid or mitigate damage to known cultural sites; (4) steps to

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be taken in the event other sites are identified after approval of the plan; and (5) provisions for monitoring construction to protect cultural resources. Except for monitoring, all steps of the plan must be carried out prior to the start of construction. The requirements for this plan should not be construed to exempt or alter compliance by the OWNER or managing agency with 36 CFR 800. This plan must be filed with SHPO.

2.0 CONSTRUCTION

2.1. GENERAL

2.1.1. The preservation of the natural landscape contours and environmental features shall be an important consideration in the location of all construction facilities, including roads, storage areas, and buildings. Construction of these facilities shall be planned and conducted so as to minimize destruction, scarring, or defacing of the natural vegetation and landscape. Any necessary earthmoving shall be planned and designed to be as compatible as possible with natural landforms.

2.1.2. Temporary construction sites and staging areas shall be the minimum size necessary to perform the work. Such areas shall be located where most environmentally compatible, considering slope, fragile soils or vegetation, and risk of erosion. After construction, these areas shall be restored as specified in Section 3.0 of these specifications unless the STATE INSPECTOR authorizes a specific exemption in writing.

2.1.3. All work areas shall be maintained in a neat, clean, and sanitary condition at all times. Trash or construction debris (in addition to solid wastes described in section 2.14) shall be regularly removed during the construction, restoration, and reclamation periods.

2.1.4. In areas where mixing of soil horizons would lead to a significant reduction in soil productivity, increased difficulty in establishing permanent vegetation, or an increase in weeds, mixing of soil horizons shall be avoided insofar as possible. This may be done by removing and stockpiling topsoil, where practical, so that it may be spread over subsoil during site restoration. Known areas where stockpiling of topsoil is required are listed in Appendix L. Prior to construction the STATE INSPECTOR may designate other areas.

2.1.5. Vegetation such as trees, plants, shrubs, and grass on or adjacent to the right-of-way which do not interfere with the performance of construction work or operation of the line itself shall be preserved.

2.1.6. The OWNER shall take all necessary actions to avoid adverse impacts to SENSITIVE AREAS listed in Appendix A. The STATE INSPECTOR shall be notified two working days in advance of initial clearing or construction activity in these areas. The OWNER shall mark or flag the clearing backlines and limits of disturbance in certain SENSITIVE AREAS as indicated in Appendix A. All construction activities must be conducted within this marked area.

2.1.7. The OWNER shall either acquire appropriate land rights or provide compensation for damage for the land area that will be disturbed by construction. The width of the area disturbed by construction shall not exceed a reasonable distance from the centerline

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as necessary to perform the work. For this project, work should be contained within the area specified in Appendix C.

2.1.8. Flow in a stream course may not be permanently diverted. If temporary diversion is necessary, flow will be restored before a major runoff season or the next spawning season, as determined by the STATE INSPECTOR in consultation with the managing agency.

2.2. CONSTRUCTION MONITORING

2.2.1. The STATE INSPECTOR is responsible for implementing the monitoring plan required by ARM 17.20.1902. The plan specifies the type of monitoring data and activities required, and terms and schedules of monitoring data collection, and assigns responsibilities for data collection, inspection reporting, and other monitoring activities. It is attached as Appendix Q.

2.2.2. The STATE INSPECTOR, the OWNER, and the OWNER'S agents will attempt to rely upon a cooperative working relationship to reconcile potential problems relating to construction in SENSITIVE AREAS and compliance with these specifications. When construction activities would cause excessive environmental impacts due to seasonal field conditions or damage to sensitive features, the STATE INSPECTOR will discuss possible mitigating measures or minor construction rescheduling to avoid these impacts with the OWNER. The STATE INSPECTOR will be prepared to provide the OWNER with written documentation of the reasons for the modifications within 24 hours of their imposition.

2.2.3. The STATE INSPECTOR may require mitigating measures or procedures at some sites beyond those listed in Appendix A in order to minimize environmental damage due to unique circumstances that arise during construction, such as unanticipated discovery of a cultural site. The STATE INSPECTOR will follow procedures described in the monitoring plan when such situations arise.

2.2.4. In the event that the STATE INSPECTOR shows reasonable cause that compliance with these specifications is not being achieved, DEQ would take corrective action as described in 75-20-408, MCA.

2.3. TIMING OF CONSTRUCTION

2.3.1. Construction and motorized travel may be restricted or prohibited at certain times of the year in certain areas. Exemptions to these timing restrictions may be granted by DEQ in writing if the OWNER can clearly demonstrate that no environmental impacts will occur as a result. These areas, listed in Appendix D, include areas deemed as SENSITIVE AREAS.

2.3.2. In order to prevent rutting and excessive damage to vegetation, construction will not take place during periods of high soil moisture when construction vehicles will cause severe rutting.

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2.4. PUBLIC SAFETY

2.4.1. All construction activities shall be done in compliance with existing health and safety laws.

2.4.2. Requirements for aeronautical hazard marking shall be determined by the OWNER in consultation with the Montana Aeronautical Division, the FAA, and DEQ. These requirements are listed in Appendix E. Where required, aeronautical hazard markings shall be installed at the time the wires are strung, according to the specifications listed in Appendix E.

2.4.3. Noise levels shall not exceed established DEQ standards as a result of operation of the facility and associated facilities. For electric transmission facilities, the average annual noise levels, as expressed by an A-weighted day-night scale (Ldn) will not exceed 50 decibels at the edge of the right-of-way in residential and subdivided areas unless the affected LANDOWNER waives this condition.

2.4.4. The facility shall be designed, constructed, and operated to adhere to the National Electric Safety Code regarding transmission lines.

2.4.5. The electric field at the edge of the right-of-way will not exceed 1 kilovolt per meter measured 1 meter above the ground in residential or subdivided areas unless the affected LANDOWNER waives this condition, and the electric field at road crossings under the facility will not exceed 7 kilovolts per meter measured 1 meter above the ground.

2.5. PROTECTION OF PROPERTY

2.5.1. Construction operations shall not take place over or upon the right-of-way of any railroad, public road, public trail, or other public property until negotiations and/or necessary approvals have been completed with the managing agency. Roads and trails will be protected and kept open for public use. Where it is necessary to cross a trail with access roads, the trail corridor will be restored. Adequate signing and/or blazes will be established so the user can find the route. All roads and trails designated by government agencies as needed for fire protection or other purposes shall be kept free of logs, brush, and debris resulting from operations under this agreement. Any such road or trail damaged by project construction or maintenance shall be promptly restored to its original condition.

2.5.2. Reasonable precautions shall be taken to protect, in place, all public land monuments and private property corners or boundary markers. If any such land markers or monuments are destroyed, the marker shall be reestablished and referenced in accordance with the procedures outlined in the "Manual of Instruction for the Survey of the Public Land of the United States" or, in the case of private property, the specifications of the county engineer. Reestablishment of survey markers will be at the expense of the OWNER

2.5.3. Construction shall be conducted so as to prevent any damage to existing real property including but not limited to transmission lines, distribution lines, telephone

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lines, railroads, ditches, and public roads crossed. If such property is damaged by operations under this agreement, the OWNER shall repair such damage immediately to a reasonably satisfactory condition in consultation with the property owner.

2.5.4. In areas with livestock, the OWNER shall make a reasonable effort to comply with the reasonable requests of LANDOWNERs regarding measures to control livestock. Unless requested by a LANDOWNER, care shall be taken to ensure that all gates are closed after entry or exit. Gates shall be inspected and repaired when necessary during construction and missing padlocks shall be replaced. The OWNER shall ensure that gates are not left open at night or during periods of no construction activity unless the LANDOWNER makes other requests. Any fencing or gates cut, removed, damaged, or destroyed by the OWNER shall immediately be replaced with new materials. Fences installed shall be of the same height and general type as a nearby fence on the same property, and shall be stretched tight with a fence stretcher before stapling or securing to the fence post. Temporary gates shall be of sufficiently high quality to withstand repeated opening and closing during construction, to the satisfaction of the LANDOWNER.

The LANDOWNER shall be compensated for any losses to personal property due to construction or maintenance activities.

2.5.5. The CONTRACTOR must notify the OWNER, the STATE INSPECTOR, and, if possible, the affected LANDOWNER within two working days of damage to land, crops, property, or irrigation facilities, contamination or degradation of water, or livestock injury caused by the OWNER's construction activities, and the OWNER shall reasonably restore any damaged resource or property or provide reasonable compensation to the affected party.

2.5.6. Pole holes and anchor holes must be covered or fenced in any fields, pastures, or ranges being used for livestock grazing or where a LANDOWNER's requests can be reasonably accommodated.

2.5.7. When requested by the LANDOWNER, all fences crossed by permanent access roads shall be provided with a gate. All fences to be crossed by access roads shall be braced before the fence is cut. Fences not to be gated should be restrung temporarily during construction and restrung permanently within 30 days following construction, subject to the reasonable desires of the LANDOWNER.

2.5.8. Where new access roads cross fence lines, the OWNER shall make reasonable effort to accommodate the LANDOWNER's wishes on gate location and width.

2.5.9. Any breaching of natural barriers to livestock movement by construction activities will require fencing sufficient to control livestock.

2.6. TRAFFIC CONTROL

2.6.1. At least 30 days before any construction within or over any state or federal highway right-of-way or paved secondary highway maintained by DOT, the OWNER will notify the appropriate DOT field office to review the proposed occupancy and to

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obtain appropriate permits and authorizations. The OWNER must supply DEQ with documentation that this consultation has occurred. This documentation should include any measures recommended by DOT and to what extent the OWNER has agreed to comply with these measures. In the event that recommendations or regulations were not followed, a statement as to why the OWNER chose not to follow them should be included. If there is a dispute, DEQ will resolve the matter.

2.6.2. In areas where project construction creates a hazard, traffic will be controlled according to the applicable DOT regulations. Safety signs advising motorists of construction equipment shall be placed on major state highways, as recommended by DOT. The installation of proper road signing will be the responsibility of the OWNER.

2.6.3. The managing agency shall be notified, as soon as practicable, when it is necessary to close public roads to public travel for short periods to provide safety during construction.

2.6.4. Construction vehicles and equipment will be operated at speeds safe for existing road and traffic conditions.

2.6.5. Traffic delays will be restricted on primary access routes, as determined by DOT or the managing agency.

2.6.6. Access for fire and emergency vehicles will be provided for at all times.

2.6.7. Public travel through and use of active construction areas shall be limited at the discretion of the managing agency.

2.7. ACCESS ROADS AND VEHICLE MOVEMENT

2.7.1. Construction of new roads shall be the minimum reasonably required to construct and maintain the facility. State, county, and other existing roads shall be used for construction access wherever possible. Access roads intended to be permanent should be initially designed as such. The location of access roads and towers shall be established in consultation with affected LANDOWNERs, and LANDOWNER concerns shall be accommodated where reasonably possible and not in contradiction to these specifications or other DEQ conditions.

2.7.2. All new roads, both temporary and permanent, shall be constructed with the minimum possible clearing and soil disturbance to minimize erosion, as specified in Section 2.11 of these specifications.

2.7.3. Where practical, all roads shall be initially designed to accommodate one-way travel of the largest piece of equipment that will be required to use them; road width shall be no wider than necessary.

2.7.4. Roads shall be located in the right-of-way insofar as possible. Travel outside the right-of-way to enable traffic to avoid cables and conductors during conductor-stringing shall be kept to the minimum possible. Road crossings of the right-of-way should be near support structures.

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2.7.5. Where practical, temporary roads shall be constructed on the most level land available. Where temporary roads cross flat land they shall not be graded or bladed unless necessary, but will be flagged or otherwise marked to show their location and to prevent travel off the roadway.

2.7.6. In order to minimize soil disturbance and erosion potential, no cutting and filling for access road construction shall be allowed in areas of up to 5 percent sideslope. In areas of over 5 percent sideslope, road building that may be required shall conform to a 4 percent outslope. The roads shall be constructed to prevent channeling of runoff, and shoulders or berms that would channel runoff shall be avoided.

2.7.7. The OWNER will maintain all permanent access roads, including drainage facilities, which are constructed for use during the period of construction. In the event that a road would be left in place, the OWNER and LANDOWNER may enter into agreements regarding maintenance for erosion control following construction.

2.7.8. Any damage to existing private roads, including rutting, resulting from project construction or maintenance shall be repaired and restored to a condition as good or better than original as soon as possible unless otherwise specified by landowners during land owner negotiations . Repair and restoration of roads should be accomplished during and following construction as necessary to reduce erosion.

2.7.9. All permanent access road surfaces, including those under construction, will be prepared with the necessary erosion control practices as determined by the STATE INSPECTOR or the managing agency prior to the onset of winter.

2.7.10. Any necessary snow removal shall be done in a manner to preserve and protect roads signs and culverts, to ensure safe and efficient transportation, and to prevent excessive erosion damage to roads, streams, and adjacent land.

2.7.11. At the conclusion of line construction, final maintenance will be performed on all existing private roads used for construction access by the CONTRACTOR. These roads will be returned to a condition as good as or better than when construction began.

2.7.12. At least 30 days prior to construction of a new access road approach intersecting a state or federal highway, or of any structure encroaching upon a highway right-of-way, the OWNER shall submit to DOT a plan and profile map showing the location of the proposed construction. At least five days prior to construction, the OWNER shall provide the STATE INSPECTOR written documentation of this consultation and actions to be taken by the OWNER as provided in 2.6.1. If there is a disagreement over state (non-federal) highway crossings, the matter will be resolved by the STATE INSPECTOR.

2.8. EQUIPMENT OPERATION

2.8.1. During construction, unauthorized cross-country travel and the development of roads other than those approved shall be prohibited. The OWNER shall be liable for any damage, destruction, or disruption of private property and land caused by his construction personnel and equipment as a result of unauthorized cross-country travel and/or road development.

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2.8.2. To prevent excessive soil damage in areas where a graded roadway has not been constructed, the limits and locations of access for construction equipment and vehicles shall be clearly marked or specified at each new site before any equipment is moved to the site. Construction foremen and personnel should be well versed in recognizing these markers and shall understand the restriction on equipment movement that is involved.

2.8.3. Dust control measures shall be implemented on access roads where required by the managing agency or where dust would pose a nuisance to residents. Construction activities and travel shall be conducted to minimize dust. Water, straw, wood chips, dust palliative, gravel, combinations of these, or similar control measures may be used. Oil or similar petroleum-derivatives shall not be used.

2.8.4. Work crew foremen shall be qualified and experienced in the type of work being accomplished by the crew they are supervising. Earthmoving equipment shall be operated only by qualified, experienced personnel. Correction of environmental damage resulting from operation of equipment will be the responsibility of the OWNER. Repair of damage to a condition reasonably satisfactory to the LANDOWNER, managing agency, or if necessary, DEQ, is required.

2.8.5. Sock lines will be strung using methods that minimize disturbance of soils and vegetation.

2.8.6. Following construction in areas designated by the local weed control board or STATE INSPECTOR as a noxious weed area the CONTRACTOR shall thoroughly wash all vehicles and equipment to remove weed parts and seeds immediately prior to leaving the area.

2.9. RIGHT-OF-WAY CLEARING AND SITE PREPARATION

2.9.1. The STATE INSPECTOR shall be notified at least ten days prior to any timber clearing. The STATE INSPECTOR shall be responsible for notifying the DNRC Forestry Division.

2.9.2. During clearing of survey lines or the right-of-way, shrubs shall be preserved to the greatest extent possible. Shrub removal shall be limited to crushing where necessary. Shrubs may be cut off at ground level, leaving roots undisturbed so that they may re-sprout.

2.9.3. Right-of-way clearing shall be kept to the minimum necessary to meet the requirements of the National Electric Safety Code. Trees to be saved within the clearing backlines and danger trees located outside the clearing backlines shall be marked. Clearing backlines in SENSITIVE AREAS will be indicated on plan and profile maps. All snags and old growth trees that do not endanger the line or maintenance equipment shall be preserved. In designated SENSITIVE AREAS, the STATE INSPECTOR shall approve clearing boundaries prior to clearing.

2.9.4. In no case should the entire nominal width of the right-of-way be cleared of trees up to the edge, unless approved by the STATE INSPECTOR and the LANDOWNER. Clearing should instead produce a "feathered edge" right-of-way configuration, where

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only specified hazard trees and those that interfere with construction or conductor clearance are removed. In areas where there is potential for long, tunnel views of transmission lines or access roads as identified in Appendix A, care shall be taken to screen the lines from view. For areas identified in Appendix A, a separating screen of vegetation shall be retained where the right-of-way parallels or crosses highways and rivers.

2.9.5. During construction, care will be taken to avoid damage to small trees and shrubs on the right-of-way that do not interfere with the clearing requirements under 2.9.3. and would not grow to create a hazard over a ten-year period.

2.9.6. Soil disturbance and earth moving will be kept to a minimum.

2.9.7. The OWNER shall be held liable for any unauthorized cutting, injury or destruction to timber whether such timber is on or off the right-of-way.

2.9.8. Unless otherwise requested by the LANDOWNER or managing agency, felling shall be directional in order to minimize damage to remaining trees. Maximum stump height shall be no more than 12 inches on the uphill side or 1/3 the tree diameter whichever is greater. Trees will not be pushed or pulled over. Stumps will not be removed unless they conflict with a structure, anchor, or roadway.

2.9.9. Special logging, clearing, or excavation techniques may be required in certain highly sensitive or fragile areas, as listed in Appendix A.

2.9.10. Crane landings shall be constructed on level ground unless extreme conditions (such as slope, soft, or marshy ground) make other construction necessary. In areas where more than one crane landing per tower site would be built, the STATE INSPECTOR will be notified at least 5 days prior to the beginning of construction at those sites.

2.9.11. No motorized travel on, scarification of, or displacement of talus slopes shall be allowed except where approved by the STATE INSPECTOR and LANDOWNER.

2.9.12. To avoid unnecessary ground disturbance, grounding wires or counterpoise should be placed or buried in disturbed areas whenever possible.

2.9.13. Slash resulting from project clearing that may be washed out by high water the following spring shall be removed and piled outside the floodplain before runoff. Instream slash resulting from project clearing must be removed within 24 hours.

2.9.14. Streamside trees will be felled away from streams rather than into or across streams.

2.10. GROUNDING

Grounding of fences, buildings, and other structures on and adjacent to the right-of-way shall be done according to the specifications of the National Electric Safety Code and any other specifications listed in Appendix G.

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2.11. EROSION AND SEDIMENT CONTROL

2.11.1. Clearing and grubbing for roads and rights-of-way and excavations for stream crossings shall be carefully controlled to minimize silt or other water pollution downstream from the rights-of-way. At a minimum, erosion control measures described in the OWNER's Storm Water Control Plan shall be implemented. Sediment retention basins will be installed as required by the STATE INSPECTOR or managing agency.

2.11.2. Roads shall cross drainage bottoms at sharp or nearly right angles and level with the stream bed whenever possible. Temporary bridges, fords, culverts, or other structures will be installed to avoid stream bank damage.

2.11.3. Under no circumstances shall stream bed materials be removed for use as backfill, embankments, road surfacing, or for other construction purposes.

2.11.4. No excavations shall be allowed on any river or perennial stream channels or floodways at locations likely to cause detrimental erosion or offer a new channel to the river or stream at times of flooding.

2.11.5. Installation of culverts, bridges, or other structures in perennial streams along with clearing on stream beds and banks will be done as specified by the STATE INSPECTOR following on-site inspections with DEQ, DFWP, and local conservation districts. All culverts shall be installed with the culvert inlet and outlet at natural stream grade or ground level.

2.11.6. Construction of access roads, bridges, fill slopes, culverts, or impoundments, or channel changes within the high-water mark of any perennial stream, lake, or pond, requires consultation with DFWP and the local conservation district and application of applicable water quality standards. Within 15 days prior to the start of construction, the OWNER shall submit written documentation that consultation has occurred. Included in this documentation should be the recommendation of the agencies consulted and the actions that OWNER expects to take to completely implement them.

2.11.7. No blasting shall be allowed in streams. Blasting may be allowed near streams if precautions are taken to protect the stream from debris and from entry of nitrates or other contaminants into the stream.

2.11.8. The OWNER shall maintain private roads while using them. All ruts made by machinery shall be filled or graded to prevent channeling. In addition, the OWNER must take measures to prevent the occurrence of erosion caused by wind or water during and after use of these roads. Some erosion-preventive measures include but are not limited to, installing or using cross-logs, drain ditches, water bars, and wind erosion inhibitors such as water, straw, gravel, or combinations of these. Erosion control shall be accomplished as described in the Montana Pollution Discharge Elimination System (MPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

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2.11.9. The OWNER shall prevent material from being deposited in any watercourse or stream channel. Where necessary, measures such as hauling of fill material, construction of temporary barriers, or other approved methods shall be used to keep excavated materials and other extraneous materials out of watercourses. Any such materials entering watercourses shall be removed immediately.

2.11.10. The OWNER shall be responsible for the stability of all embankments created during construction. Embankments and backfills shall contain no stream sediments, frozen material, large roots, sod, or other materials that may reduce their stability.

2.11.11. Culverts, arch bridges, or other stream crossing structures shall be installed at all permanent crossings of flowing or dry watercourses where fill is likely to wash out during the life of the road. Culvert or bridge installation is prohibited in areas of important fish spawning beds identified by DFWP and during specified fish spawning seasons on less sensitive streams or rivers. All culverts shall be large enough to handle approximately 15-year floods. Culvert size shall be determined by standard procedures taking into account the variations in vegetation and climatic zones in Montana, the amount of fill, and the drainage area above the crossing, and shall be approved as specified in 2.11.6. All culverts shall be installed at the time of road construction and maintained for the life of the project. The areas where stream-crossing measures must be taken are listed in Appendix H.

2.11.12. No fill material other than that necessary for road construction shall be piled within the high water zone of streams where floods can transport it directly into the stream. Excess floatable debris shall be removed from areas immediately above crossings to prevent obstruction of culverts or bridges during periods of high water.

2.11.13. No skidding of logs or driving of vehicles across a perennial watercourse shall be allowed, except via authorized construction roads.

2.11.14. No perennial watercourses shall be permanently blocked or diverted.

2.11.15. Skidding with tractors shall not be permitted within 100 feet of streams containing flowing water except in places designated in advance, and in no event shall skid roads be located on these stream courses. Skid trails shall be located high enough out of draws, swales, and valley bottoms to permit diversion of runoff water to natural undisturbed forest ground cover.

2.11.16. Construction methods shall prevent accidental spillage of solid matter, contaminants, debris, petroleum products, and other objectionable pollutants and wastes into watercourses, lakes, and underground water sources. Secondary containment catchment basins capable of containing the maximum accidental spill shall be installed at areas where fuel, chemicals or oil are stored. Any accidental spills of such materials shall be cleaned up immediately.

2.11.17. To reduce the amount of sediment entering streams, a strip of undisturbed ground or vegetation will be provided for 50 feet between areas of disturbance (such as road construction or tower construction) and wetlands, stream courses, and around first order or larger streams that have a well-defined stream course or aquatic or riparian

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vegetation, unless otherwise required by the LANDOWNER. Buffer strip width is measured from the high water line of a channel or wetland and will be determined by the STATE INSPECTOR and managing agency. When braided streams with more than one discernible channel (ephemeral or permanent) are encountered, the high water line of the outermost channel shall be used. In the event that vegetation cannot be left undisturbed, structural sediment containment, approved by the STATE INSPECTOR, must be substituted before soil-disturbing activity commences.

2.11.18. When no longer needed, all temporary structures or fill installed to aid stream crossing shall be removed and the course of the stream reestablished to prevent future erosion.

2.11.19. All temporary dams built on the right-of-way shall be removed after line construction unless otherwise approved by the STATE INSPECTOR. Dams allowed to remain shall be upgraded to permanent structures and shall be provided with spillways or culverts, a continuous sod cover on their tops, and downstream slopes meeting dam safety standards. Spillways may be protected against erosion with riprap or equivalent means.

2.11.20. Damage resulting from erosion or other causes shall be repaired after completion of grading and before revegetation is begun.

2.11.21. Point discharge of water will be dispersed in a manner to avoid erosion or sedimentation of streams as required in DEQ permits.

2.11.22. Riprap or other erosion control activities will be planned based on possible downstream consequences of activity, and installed during the low flow season if possible.

2.11.23. Water used in embankment material processing, aggregate processing, concrete curing, foundation and concrete lift cleanup, and other wastewater processes shall not be discharged into surface waters without a valid discharge permit from DEQ.

2.12. ARCHAEOLOGICAL, HISTORICAL AND PALEONTOLOGIC RESOURCES

2.12.1. All construction activities shall be conducted so as to prevent damage to significant archaeological, historical, or paleontologic resources, in accordance with the requirements of 1.4.1 and Appendix I.

2.12.2. Any relics, artifacts, fossils or other items of historical, paleontologic, or archaeological value shall be preserved in a manner acceptable to both the LANDOWNER and the State Historic Preservation Officer. If any such items are discovered during construction, SHPO shall be notified immediately. Work that could disturb the materials or surrounding area must cease until the site can be properly evaluated by a qualified archaeologist (either employed by the OWNER, managing agency or representing SHPO) and recommendations made by that person based on the Historic Preservation Plan outlined in Appendix I (but in no case more than 10 days). For significant sites, the OWNER must follow recommendations of SHPO.

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2.12.3. The OWNER shall conform to treatments recommended for cultural resources by either SHPO or the Advisory Council on Historic Preservation (ACHP).

2.13. PREVENTION AND CONTROL OF FIRES

2.13.1. Burning, fire prevention, and fire control shall comply with the burning plan and fire plan in Appendix J. These plans shall meet the requirements of the managing agency and/or the fire control agencies having jurisdiction. The STATE INSPECTOR shall be invited to attend all meetings with these agencies to discuss or prepare these plans. The STATE INSPECTOR, in turn, shall notify DNRC of all such meetings.

2.13.2. The OWNER shall direct the CONTRACTOR to comply with regulations of any county, town, state or governing municipality having jurisdiction regarding fire laws and regulations.

2.13.3. Blasting caps, powder, and other explosives shall be stored only in approved areas and containers and always separate from each other.

2.13.4. The OWNER shall direct the CONTRACTOR to properly store and handle combustible material that could create objectionable smoke, odors, or fumes. The OWNER shall direct the CONTRACTOR not to burn refuse such as trash, rags, tires, plastics, or other debris, except as permitted by the county, town, state, or governing municipality having jurisdiction.

2.14. WASTE DISPOSAL

2.14.1. The OWNER shall direct the CONTRACTOR to use licensed solid waste disposal sites. Inert materials (Group III wastes) may be disposed of at licensed Class III landfill sites; mixed refuse (Group II wastes) must be disposed of at licensed Class II landfill sites.

2.14.2. Emptied pesticide containers or other chemical containers must be triple rinsed to render them acceptable for disposal in Class II landfills or for scrap recycling pursuant to ARM 17.54.201 for treatment or disposal. Pesticide residue and pesticide containers shall be disposed of in accordance with ARM 17.30.637.

2.14.3. All waste materials constituting a hazardous waste defined in ARM 16.44.303, and wastes containing any concentration of polychlorinated biphenyls must be transported to an approved designated hazardous waste management facility (as defined in ARM 17.53.201) for treatment or disposal.

2.14.4. All used oil shall be hauled away and recycled or disposed of in a licensed Class II landfill authorized to accept liquid wastes or in accordance with 2.14.2 and 2.14.3 above. There shall be no intentional release of crankcase oil or other toxic substances into streams or soil. In the event of an accidental spill into a waterway, the substances will be cleaned up and the STATE INSPECTOR will be contacted immediately. Any spill of refined petroleum products greater than 25 gallons must be reported to the State at Disaster and Emergency Services at 406-841-03911.

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2.14.5. Sewage shall not be discharged into streams or streambeds. The OWNER shall direct the CONTRACTOR to provide refuse containers and sanitary chemical toilets, convenient to all principal points of operation. These facilities shall comply with applicable federal, state, and local health laws and regulations. A septic tank pump licensed by the State shall service these facilities.

2.14.6. In order to reduce fire hazard, small trees and brush cut during construction should be chipped, burned, and/or scattered. Slash 3 inches in diameter or greater may be scattered in quantities of up to 15 tons/acre unless otherwise requested by the LANDOWNER. Tops, limbs and brush less than 3 inches in diameter and 3 feet in length may be left in quantities less than 3 tons per acre except on cropland and residential land or where otherwise specified by the LANDOWNER. In certain cases the STATE INSPECTOR will authorize chipping and scattering of tops, limbs and brush in excess of 3 tons per acre as an erosion control measure. Merchantable timber should be decked and removed at the direction of the LANDOWNER or managing agency

2.14.7. Refuse burning shall require the prior approval of the LANDOWNER and a Montana Open Burning Permit must be obtained from DEQ. Any burning of wastes shall comply with section 2.13 of these specifications.

2.15. SPECIAL MEASURES

2.15.1. Poles with a low reflectivity constant should be used to reduce potential for visual contrast.

2.15.2.. At river crossings, strategic placement of structures should be done both as a means to screen views of the transmission line and right-of-way and to minimize the need for vegetative clearing. Crossings of rivers should be designed to avoid diagonal crossings.

3.0 POST-CONSTRUCTION CLEANUP AND RECLAMATION

3.1. CLEANUP

3.1.1. All litter resulting from construction is to be removed from the right-of-way and along access roads leading to the right-of-way. Such litter shall be legally disposed of as soon as possible, but in no case later than 60 days following completion of wire clipping. If requested by the LANDOWNER, the OWNER shall provide for removal of any additional construction-related debris discovered after this initial cleanup.

3.1.2. Insofar as practical, all signs of temporary construction facilities such as haul roads, work areas, buildings, foundations or temporary structures, soil stockpiles, excess or waste materials, or any other vestiges of construction shall be removed and the areas restored to as natural a condition as practical, in consultation with the LANDOWNER.

3.2. RESTORATION, RECLAMATION, AND REVEGETATION

3.2.1 Restoration, reclamation, and revegetation of the right-of-way, access roads, crane pads, splicing or stringing sites, borrow sites, gravel fill, stone, or aggregate excavation, or any other disturbance shall be in accordance with the reclamation and revegetation

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plan (Appendix K). The OWNER may choose to develop this plan in consultation with appropriate land management agencies as part of easement negotiations. In this case, the OWNER shall provide written documentation of consultation with those agencies and a copy of the agreed-to plan. This plan and any conditions to the Certificate approved by DEQ shall be attached as Appendix K.

3.2.2. Scarring or damage to any landscape feature listed in Appendix A shall be restored as nearly as practical to its original condition. Bare areas created by construction activities will be reseeded in compliance with Appendices K and L to prevent soil erosion.

3.2.3. After construction is complete, and in cooperation with the LANDOWNER, temporary roads shall be closed.

3.2.4. In agricultural areas where soil has been compacted by movement of construction equipment and unless otherwise specified by the LANDOWNER, the OWNER shall direct the CONTRACTOR to rip the soil deep enough to restore productivity, or if complete restoration is not possible, the OWNER shall compensate the LANDOWNER for lost productivity.

3.2.5. Earth next to access roads that cross streams shall be replaced at slopes less than the normal angle of repose for the soil type involved.

3.2.6. All drainage channels shall be restored to a gradient and width that will prevent accelerated gully erosion.

3.2.6. Drive-through dips, open-top box culverts, waterbars, or cross drains shall be added to roads at the proper spacing and angle as necessary to prevent erosion.

3.2.7. Interrupted drainage systems shall be restored.

3.2.8. Sidecasting of waste materials may be allowed on slopes over 40 percent after approval by the LANDOWNER, however, this will not be allowed within the buffer strip established for stream courses, in areas of high or extreme soil instability, or in other SENSITIVE AREAS identified in Appendix A. Surplus materials shall be hauled to LANDOWNER-approved sites in such areas.

3.2.9. Seeding prescriptions to be used in revegetation, requirements for hydroseeding, fertilizing, and mulching, as jointly determined by representatives of the OWNER, DEQ, and other involved state and federal agencies, are specified in Appendix L.

3.2.10. Piling and windrowing of material for burning shall use methods that will prevent significant amounts of soil from being included in the material to be burned and minimize destruction of ground cover. Non-mechanized methods are recommended if necessary to minimize soil erosion and vegetation disturbance. Piles shall be located so as to minimize danger to timber and damage to ground cover when burned.

3.2.11. During restoration in areas where topsoil has been stockpiled, the site will be graded to near natural contours and the topsoil will be replaced on the surface.

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3.2.12. Excavated material not suitable or required for backfill shall be evenly filled back onto the cleared area prior to spreading any stockpiled soil. Large rocks and boulders uncovered during excavation and not buried in the backfill will be disposed of as approved by the STATE INSPECTOR and/or LANDOWNER.

3.2.13. Application rates and timing of seeds and fertilizer, and purity and germination rates of seed mixtures, shall be as determined in consultation with DEQ. Reseeding shall be done at the first appropriate opportunity after construction ends.

3.2.14. Where appropriate, hydro seeding, drilling, or other appropriate methods shall be used to aid revegetation. Mulching with straw, wood chips, or other means shall be used where necessary. Areas requiring such treatment are listed in Appendix L.

3.2.15. All temporary roads shall be obliterated and reclaimed (with the concurrence of the LANDOWNER), as specified in Appendix M. All temporary roadways shall be graded and scarified as specified to permit the growth of vegetation and to discourage traffic. Permanent unsurfaced roadbeds not open to public use will be revegetated as soon after use as possible unless specified otherwise by the LANDOWNER.

3.3. MONITORING

3.3.1. Upon notice by the OWNER, the STATE INSPECTOR will schedule initial post-construction field inspections following cleanup and road closure. Follow-up visits will be scheduled as required to monitor the effectiveness of erosion controls, reseeding measures, and the right-of-way management plan (Appendix N). The STATE INSPECTOR will contact the LANDOWNER for post-construction access and to determine LANDOWNER satisfaction with the OWNER's restoration measures.

3.3.2. The STATE INSPECTOR shall document observations for inclusion in monitoring reports regarding bond release or the success of mitigating measures required by DEQ.

3.3.2. Failure of the OWNER to adequately reclaim all disturbed areas in accordance with section 3.2 and ARM 17.20.1902(10) shall be cause for forfeiture of the reclamation BOND(s) or penalties described in Section 0.3. Success of revegetation shall be based on criteria specified in ARM 17.20.1902(10). Failure of the OWNER to achieve adequate revegetation of disturbed areas may be cause for forfeiture of the revegetation BOND(s) or penalties described in Section 0.3.

4.0. OPERATION AND MAINTENANCE

4.1. RIGHT-OF-WAY MANAGEMENT AND ROAD MAINTENANCE

4.1.1. Maintenance of the right-of-way and permanent access roads shall be as specified in the right-of-way management plan (Appendix N). This plan shall provide for the protection of SENSITIVE AREAS identified prior to and during construction as well as control of erosion on permanent access roads.

4.1.2. Vegetation that has been saved through the construction process and which does not pose a hazard or potential hazard to the transmission line, particularly that of value

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to fish and wildlife as specified in Appendix A, shall be allowed to grow on the right-of-way.

4.1.3. Vegetative cover adjacent to the transmission line in areas other than cropland shall be maintained in cooperation with the LANDOWNER.

4.1.4. Grass cover, water bars, cross drains, the proper slope, and other agreed to measures shall be maintained on permanent access roads and service roads in order to prevent soil erosion.

4.2. MAINTENANCE INSPECTIONS

4.2.1. The OWNER shall have responsibility to correct soil erosion, noxious weed, or revegetation problems on the right-of-way or access roads as they become known. Appropriate corrective action will be taken where necessary. The OWNER, through agreement with the LANDOWNER or managing agency, may provide a mechanism to identify and correct such problems but the OWNER is responsible for correcting these problems.

4.2.2. Operation and maintenance inspections using ground vehicles shall be timed so that routine maintenance will be done when access roads are firm, dry, or frozen, wherever possible. Maintenance vegetative clearing shall be done according to criteria spelled out in Appendix N.

4.3. CORRECTION OF LANDOWNER PROBLEMS

4.3.1. When the facility causes interference with radio, TV, other stationary communication systems, or GPS signals after the facility is operating, the OWNER will correct the interference with mechanical corrections to facility hardware, or antennas, or will install remote antennas or repeater stations, or will use other reasonable means to correct the problem.

4.3.2. The OWNER will respond to complaints of interference with radio, TV or GPS signals by investigating complaints to determine the origin of the interference. If the interference is not caused by the facility, the OWNER shall so inform the person bringing the complaint. The OWNER shall provide the STATE INSPECTOR with documentation of the evidence regarding the source of the interference if the person brings the complaint to the STATE INSPECTOR or DEQ.

4.4. HERBICIDES AND WEED CONTROL

4.4.1. Weed control, including any application of herbicides in the right-of-way, will be done by applicators currently licensed in Montana and in accordance with recommendations of the Montana Department of Agriculture, and in accordance with the right-of-way maintenance plan in Appendix N.

4.4.2. Herbicides will not be used in certain areas identified by DEQ and DFWP, as listed in Appendix O or as requested by the LANDOWNER.

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4.4.3. Proper herbicide application methods will be used to keep drift and nontarget damage to a minimum.

4.4.4. Herbicides must be applied according to label specifications and in accordance with 4.4.1 above. Only herbicides registered in compliance with applicable federal and state laws may be applied.

4.4.5. Herbicides shall not be sprayed during heavy rains or threat of heavy rains. Vegetation buffer zones shall be left along all identifiable stream channels. Herbicides shall not be used in any public water supply watershed identified by DEQ.

4.4.6. In areas disturbed by the transmission line, the OWNER will cooperate with LANDOWNERs in control of noxious weeds as designated by the weed control board having jurisdiction in the county crossed by the line.

4.4.6. The OWNER shall notify the STATE INSPECTOR in writing 30 days prior to any broadcast or aerial spraying of herbicides. The notice shall provide details as to the time, place, and justification for such spraying. DEQ, DFWP, and the Montana Department of Agriculture shall have the opportunity to inspect the portion of the right-of-way or access roads, schedule for such treatment before, during, and after spraying.

4.4.7. During the second and third growing seasons following the completion of restoration and reseeding, the OWNER and STATE INSPECTOR shall inspect the right-of-way and access roads for newly established stands of noxious weeds. The county weed control supervisor shall be invited to attend this inspection. In the event that stands of weeds are encountered, the OWNER shall take appropriate control measures.

4.5. MONITORING

4.5.1. DEQ may continue to monitor operation and maintenance activities for the life of the project in order to ensure compliance with the specifications in this section (see Appendix Q).

4.5.2. The OWNER will be responsible to DEQ for the term of the reclamation BOND (Section 0.8). Following BOND release, the OWNER will report to individual LANDOWNERs and managing agencies except as specified in conditions to the certificate.

4.5.3. Upon reasonable complaint from an affected LANDOWNER or managing agency, DEQ may require the OWNER to fund additional monitoring efforts to resolve problems that develop after release of the BONDs. Such efforts would be limited to determining compliance with these specifications and other conditions of the Certificate.

5.0 ABANDONMENT

When the transmission line is no longer used or useful, structures, conductors, and ground wires shall be removed and disturbed areas reclaimed using methods outlined in Appendix K.

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APPENDICES

APPENDIX A: SENSITIVE AREAS FOR THE MATL TRANSMISSION LINE PROJECT

The following sensitive areas have been identified where special measures would be implemented to reduce impacts:

Land Use/Infrastructure

To minimize impacts to farming, DEQ could require the use of monopoles where the line crosses cropland and CRP. Whenever reasonably possible, structures should be located along field boundaries. Where span lengths are too long and structures must be located within field boundaries, structures should be placed at the edges of field strips where reasonably possible, in consultation with affected landowners. MATL will consult with landowners and make reasonable accommodation for vehicle movement along field roads.

During seeding and harvest seasons, MATL would use pilot vehicles during equipment mobilization and delivery of large, long loads on secondary roads to minimize conflict with ongoing farming activities.

Where feasible, MATL will maintain a minimum distance of 132 feet from wellheads and the edges of existing pipeline rights-of-way or the pipe itself. It may not be feasible to maintain this buffer on the western most of the Belgian Hill Local Routing Option.

On the Agency Preferred Alternative, the Northwest of Conrad Local Routing Option would be located on rangeland where reasonably possible. Cultural resource sites outside of existing access trails would be identified, fenced, and would not be disturbed unless approved by the landowner.

Geological/Soils

Precision mapping for unstable soils would be conducted along the alignment between the milepost markers identified below:

Diamond Valley Area

On the Agency Preferred Alternative between mileposts 36.92 and 37.22, 38.22 and 38.33, and between 38.41 and 38.46.

Teton River Crossing Area

On the Agency Preferred Alternative between mileposts 35.3 and 35.8, 36.2 and 36.6, and between mileposts 36.9 and 37.4.

Marias River Crossing Area

On the Agency Preferred Alternative between mileposts 92.27 and 92.35, 92.62 and 92.75, 92.78 and 92.89, 93.33 and 94.25.

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At the Teton River crossing, on the Agency Preferred Alternative, the alignment would be widened by an additional 250 feet north of the centerline between mileposts 40.47 and 42.4 to avoid areas of slope instability in this area.

At the Teton and Marias River valleys, after design but prior to construction, proposed road locations would be reviewed in the field to ensure that unnecessary road construction related disturbance does not occur. Existing access trails would be used to the fullest extent possible.

Wildlife

On the selected alternative, areas of native vegetation that have not been surveyed for grouse leks would be surveyed prior to construction. Construction would not occur during the leking season within 2 miles of leks.

Overhead ground wires must be marked in the following areas within 2 miles of leks to reduce the potential for avian collisions with the transmission line. Support structures that cross within the 2-mile buffer area around the documented leks would be fitted with raptor perch deterrents to reduce predation.

Alternative 2 between mileposts 85.7 and 92

Alternative 3 between mileposts 81 and 87

Alternative 4 between mileposts 9.5 and 10.5 and 95.5 and 101.5

Line marking devices would be installed, at intervals suggested by manufacturer's recommendations, on overhead ground wires within all stream, river and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, and Teton River. Line marking devices would also be placed within a ¼ mile buffer on either side of streams, rivers, or wetlands. Such marking devices have been reported to reduce mortality by approximately 40 to 90 percent.

Impacts to raptors would not be expected; in the event that a raptor nest was identified during construction activities, MATL would consult with the FWP and USFWS and take precautions to minimize impacts on nesting raptors**.**

Overhead ground wires within ¼ mile of wetlands will be marked to reduce the potential for collisions after inspection and a determination of the need for marking in consultation with FWP and FWS biologist.

Visual Resources

To decrease the line's contrast and visibility, non-shiny conductors would be used.

Cultural Resources

Cultural resource surveys would be completed along unsurveyed areas with a high probability of discovering new sites. If cultural resource sites are discovered, structure locations and access routes would be modified to avoid sensitive features or the site recorded.

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Unevaluated cultural resource properties and Traditional Cultural Properties along the route must be individually evaluated in terms of Project effect. In addition, an intensive cultural resource inventory of areas not previously inventoried to Montana SHPO standards is necessary to comply with regulations in the Montana Antiquities Act, as amended (1995).

A professional archeologist would observe construction in high probability areas listed below during pole placement. If cultural resources are discovered during excavation, construction would be temporarily halted while the owner completes recovery of artifacts. Artifacts are the property of the landowner.

The Agency Preferred Alternative between mileposts 0 and 15, 31 and 42.3, 56.25 and 62.6, 66.9 and 68, 68.98 and 69.57, 70.44 and 71.81, 74.9 and 87.2, 91.6 and 94.25, 96.3 and 103.1, 106 and 112.6, 110.66 and 112.64, and 115.5 and 128.7.

Wetlands

MATL would delineate wetlands within 500 feet of the alignment of the approved alternative and construction activities would not be allowed within 50 feet of wetlands. .

Floodplains

MATL would avoid placing roads and poles in designated 100 year floodplains.

Vegetation

Additional areas for monitoring or for application of mitigation measures may be identified following the pre-construction monitoring trip by the State Inspector or the Inspector's designee.

APPENDIX B: PERFORMANCE BOND SPECIFICATIONS

Construction and reclamation bonds shall be used to ensure performance with these specifications and will be specified at the time of the certification decision.

APPENDIX C: VARIATIONS IN RIGHT-OF-WAY WIDTH

See Appendix A for variations in right-of way widths.

DEQ does not recommend specific widths for construction easements. In accordance with the specifications, construction activities shall be contained in the minimum area necessary for safe and prudent construction.

DEQ does not recommend specific variations in right-of-way widths beyond those required to meet the National Electric Safety Code for electric transmission line operations and those necessary to meet standards established in ARM 17.20.1607(2).

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APPENDIX D: AREAS WHERE CONSTRUCTION TIMING RESTRICTIONS APPLY

Except for those areas described in Appendix A, no restrictions in the timing of construction are recommended, beyond those considered necessary on the basis of on-site inspections of stream crossings required in Section 2.11.6 of these specifications and in other sections of these specifications, or as negotiated by LANDOWNERs in individual easement agreements.

APPENDIX E: AERONAUTICAL HAZARD MARKINGS

For all alternatives, the OWNER would install FAA-recommended colored aerial markers for aviation safety, as well as at crossings of the Conoco pipeline and crossings of the Cenex pipeline.

For all alternatives, the OWNER would install FAA-recommended aerial markers to make the line more visible to low flying aircraft at crossings of Interstate 15 and U.S. Highways 87 and 2. Marker balls would also be placed at all river crossings.

APPENDIX F: NOXIOUS WEED AREAS

MATL's weed control program incorporates a baseline inventory and marking of existing noxious weed populations prior to construction; preventative measures (that is, washing vehicles, flagging weed populations to be avoided, and seeding following disturbance); and an integrated control program involving spraying target species in coordination with the BLM, state weed coordinator, and county weed boards and landowners. Mitigation practices such as washing vehicles and equipment would occur throughout construction and continue during future line maintenance activities. MATL would report annually to Federal, state (DNRC and DEQ), and county personnel on the condition and progress of this effort. The MATL integrated weed control plan would reduce the threat of noxious weed invasion following ground disturbance resulting from project construction and long-term maintenance. This weed control program must be implemented for the life of the project or as required by designated Federal, state(DEQ), and county personnel to ensure long-term noxious/invasive plant control measures are met in the weed control area.

APPENDIX G: GROUNDING SPECIFICATIONS

Powerlines, fences, and pipelines shall be grounded in accordance with the National Electrical Safety Code. The OWNER shall ensure that operation of the transmission line does not interfere with operation of cathodic protection systems of any pipelines crossed or paralleled. Prior to construction, the OWNER must consult with owners of pipelines crossed and paralleled (within 2,000 feet) and implement any measures requested by the pipeline owner or operator to prevent interference with the cathodic protection system and shocks to workers. In addition, MATL would comply with all Federal and State regulations concerning co-locating near buried gas pipeline.

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APPENDIX H: CULVERT AND BRIDGE REQUIREMENTS

It does not appear that new culverts or bridges will be needed during construction. In the event a culvert or bridge is needed, it shall be installed to the standards set forth in Section 2.11.11 of the specifications and following review and approval of the proposed installation by the State Inspector. The state inspector may require site specific measures to reduce impacts.

APPENDIX I: HISTORIC PRESERVATION PLAN

The OWNER, in consultation with SHPO, shall develop a plan for identification and treatment of historical or archaeological sites affected by construction. Copies of these plans shall be part of this Appendix. The plan shall identify proposed treatments to be employed to avoid, mitigate or offset project effects on cultural resource sites or culturally significant tribal resources as agreed to by SHPO.

APPENDIX J: BURNING PLAN AND FIRE PLAN

The need for a detailed burning or fire plan is not anticipated for this project. In the event that burning is required prior to or during construction, such burning shall occur in accordance with sections 0.5, 2.13, and 2.14 of the specifications.

APPENDIX K: RECLAMATION AND REVEGETATION PLAN

At least 30 days prior to the start of construction, a reclamation and revegetation plan must be developed and submitted to DEQ for approval. This plan must, at a minimum, specify seeding mixtures, rates, seeding methods and timing of seeding. It must address LANDOWNER wishes, and satisfy requirements of the MPDES General Permit for Storm Water Discharges Associated with Construction Activity and ARM 17.20.1902(10).

If a LANDOWNER's management practices prevent the attainment of 90 percent perennial ground cover after five (5) years, revegetation on that land will be deemed adequate when portions of the right-of-way disturbed by construction and temporary roads are reclaimed to a state of usefulness similar to that existing prior to construction as determined by the State Inspector.

APPENDIX L: AREAS WHERE STOCKPILING OF TOPSOIL, HYDRO SEEDING, FERTILIZING, OR MULCHING IS REQUIRED

At each area where cut and fill would be necessary to construct a road or crane pad, the OWNER shall salvage and stockpile topsoil, and spread the topsoil over disturbed areas following construction to increase re-vegetation success.

APPENDIX M: ROADS TO BE CLOSED AND/OR OBLITERATED

If permanent roads are necessary for construction or maintenance of the project, the OWNER shall close or obliterate the roads during decommissioning as requested by the LANDOWNER.

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APPENDIX N: RIGHT-OF-WAY MANAGEMENT PLAN

DEQ does not recommend a specific right-of-way management plan. To the extent possible, all maintenance and operation activities shall be performed to comply with the requirements of the environmental specifications.

APPENDIX O: WATERSHEDS AND OTHER AREAS WHERE HERBICIDES ARE PROHIBITED

DEQ does not recommend any areas or watersheds where herbicide use is prohibited. Herbicide use shall conform to all applicable local, state, and federal restrictions.

APPENDIX P: NAME AND ADDRESS OF STATE INSPECTOR

STATE INSPECTOR
Environmental Science Specialist
Montana Dept of Environmental Quality
P.O. Box 200901
1520 East Sixth Avenue
Helena, Montana 59620-0901
(406) 444-_____

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APPENDIX Q: MONITORING PLAN

The STATE INSPECTOR is responsible for implementing this monitoring plan required by 75-20-303(b) and (c), MCA, and for reporting whether terms of the Certificate of Compliance and Environmental Specifications are being met, along with any conditions in the Storm Water Pollution Prevention Plan and state land easements. The STATE INSPECTOR may identify additional mitigating measures in order to minimize environmental damage due to unique circumstances that arise during construction.

In addition to participating in preconstruction conferences the State Inspector shall conduct on-site inspections during the period of construction. At a minimum the Inspectors will be present at the start of construction and during the initiation of construction in sensitive areas. Subsequently Inspectors shall strive to conduct on-site reviews of construction activities on at least a weekly schedule. More frequent monitoring may be necessary in sensitive areas, during the peak(s) of construction activities or if monitoring reveals a pattern of non-compliance.

Inspectors shall record the dates of inspection, areas inspected, and instances where construction activities are not in conformance with Environmental Specifications or terms and conditions of the Certificate of Compliance for the project. Inspection reports shall be submitted to the OWNER's field representative in a timely manner. Follow-up work identified in the inspection reports will be the responsibility of the OWNER and will be carried out in a timely manner.

Upon the completion of construction in an area, the Inspectors will determine whether or not environmental specifications have been followed; that cleanup is complete; that damage has been repaired; that recontouring, site restoration, erosion control are complete; that road closures are adequate and that revegetation is progressing

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satisfactorily. Within 60 days of the completion of construction, the amount of reclamation bond that will be released will be determined by DEQ.

In the event the DEQ finds that the certificate holder is not correcting damage created during construction in a satisfactory manner or that initial revegetation is not progressing satisfactorily, DEQ may determine the amount and disposition of all or a portion of the reclamation bond to correct any damage that has not been corrected by the certificate holder.

At the time the reclamation bond is released by DEQ, the certificate holder shall submit a reclamation bond. Pursuant to the certificate, portions of this bond or bonds may be held for five years, or until the department determines that revegetation adequately meet the requirements specified in the certificate and in ARM 17.20.1902(10).

In the event the department finds that revegetation has not attained the growth required after five years specified in ARM 17.20.1902(10), the department may find the certificate holder in substantive noncompliance with the terms of the certificate and may determine the amount and disposition of all or a portion of the bond or bonds to achieve satisfactory revegetation.

The STATE INSPECTOR or designee shall record the dates of inspection, areas inspected, and instances where construction activities are not in conformance with Environmental Specifications or terms and conditions of the Certificate of Compliance for the project. Inspection reports shall be submitted in a timely manner to the Owner's Liaison who will see that corrections are made or that such measures are implemented in a timely manner. When violations of the Certificate are identified, the STATE INSPECTOR shall report the violation in writing to the OWNER, who shall immediately take corrective action. If violations continue, penalties described in 75-20-408, MCA may be imposed.

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APPENDIX G:
ALTERNATIVES CONSIDERED BUT DISMISSED BY MATL

APPENDIX G-1 SUMMARY OF MATL'S DISMISSED ALTERNATIVES AND ALIGNMENT SEGMENTS		
Name of Alternatives or Segment	**Location**	**Reasons for Not Carrying Forward**
Old Primary – Segment (1)	Original Primary Alignment from Canadian Border to Cut Bank	This alignment was dropped because of its close proximity to two residences, many diagonal farmland crossings, and proximity to wells. This alignment was also dropped because of changes to the preferred Canadian border crossing, and because of limited right-of-way space due to a prairie pothole along Santa Rita Road.
Old Primary – Segment (2)	A subsequent segment revision of the Primary alignment with its border crossing farther west, connecting back to A1 approximately 8 miles to the south.	This segment was further modified (to what is shown as A3 on the map) and ultimately dropped. This change was based on a final revision to the preferred Canadian border crossing location to what is now shown on the proposed route. A2 was also dropped due to diagonal crossings of farmland/cropland and proximity to wells.
Old Primary – Segment (3)	A subsequent Primary Route segment revision altering A2, moving the Canadian border crossing slightly farther west. A3 connects back to A2 approximately 4 miles to the south of the Canadian border.	This segment of the Old Primary Route was further modified to what is now the proposed route as part of initial engineering/surveying in Spring '06 because it crossed wetland areas. This effort allowed for re-routing that better avoided wetlands and prairie potholes.
Old Primary – Segment (4)	Original Primary Route Segment – Camp Nine Road south to old Marias River Crossing	This segment was dropped because it did not make use of the available public lands near the Marias River crossing as is required under MFSA. Routing was modified to that of the proposed route to take advantage of these public lands (BLM).
Old Primary – Segment (5)	Original Primary Route Segment from south of the Marias River Crossing to Bullhead Road	This segment was dropped because it did not utilize available nearby rangeland and had a greater impact on croplands in this location. The proposed route better utilizes rangeland and has less impact on croplands.
Old Primary – Segment (6)	Original Primary Route Segment from Bullhead Creek to Burlington Northern Railroad	This segment was dropped due to many diagonal crossings of farmland/cropland. Routing was modified to that of the proposed route to minimize these impacts to agricultural lands and utilize available rangeland to a much greater extent.
Old Primary – Segment (7)	A subsequent Primary Route Segment 3-4 miles southwest of Conrad near Pondera Coulee.	This segment alternative was dropped due to the proximity of an occupied residence. This segment came within .2 miles to the east of a residence.
Old Primary – Segment (8)	Original Primary Route Segment 2-3 miles southwest of Conrad near Pondera Coulee.	This segment alternative was also dropped due to the proximity of an occupied residence. This segment came within .4 miles of a residence to the west.
Old Primary – Segment (9)	Original Primary Route Segment from two miles north of Brady to approximately three miles north of the Teton River	This segment was dropped to that of the proposed route in this location primarily to avoid impacts to six residences, and to lessen impacts to cropland. In particular this segment came within 0.5 mile of four residences north of Brady as well as within .5 mile of a school.

APPENDIX G-1
SUMMARY OF MATL'S DISMISSED ALTERNATIVES AND ALIGNMENT SEGMENTS

Name of Alternatives or Segment	Location	Reasons for Not Carrying Forward
Old Primary – Segment (9-south)	Original Primary Route Segment around the Teton River Crossing	This segment was dropped because it did not take advantage of nearby public lands (DNRC lands to the west) for the Teton River Crossing and because of probable cultural resources (tipi ring sites) on the northern bluffs of the Teton River in this specific location. The Teton River crossing was moved to the west in order to make use of available public lands and avoid potential cultural impacts, as well as to avoid mature riparian cottonwood forest.
Old Primary – Segment (10)	A subsequent Primary Route Segment that heads west from a point along the Current Primary Route south of Dutton, and continues 4-5 miles to the east where it connects with the Old Primary Route and continues two miles south.	This segment was dropped due to environmental and engineering constraints (slope stability issues) in constructing the line across Timber Coulee in this locale. In addition, this segment alternative did not resolve the goal of minimizing diagonal crossings of farmland to the extent of the current proposed route.
Old Primary – Segment (11)	Another subsequent Primary Route Segment starting several miles south of A10, that heads west ~7 miles to where it connects with the Old Primary Route	This segment was dropped because it crosses close to an existing range/farm near its eastern terminus. In addition, this segment alternative did not resolve the goal of minimizing diagonal crossings of farmland to the extent of the Current Primary Route.
Old Primary – Segment (12)	Original Alternative that followed east of the Great Falls Shooting Sports Complex	This segment conflicts with plans for expansion of the shooting sports complex, including plans for new and expanded buildings. Given this conflict, this segment was dropped in favor of the proposed route which is located west of the complex.
Old Alternative B Segment (1)	Original Alternative B from Canadian Border to where it connects with the Old Primary Route	Original Alternative B was modified and moved to the east to what is labeled as B2 to further avoid impacts to wetlands. In addition the original Alternative B also crossed within .25 mile of an occupied residence.
Old Alternative B Segment (2)	A subsequent Alternative B segment from Canadian Border to (new) Primary Route	This segment was dropped to avoid impacts to nearby residences and because there is no longer a Canadian Alternative or border crossing in this specific location. Alternative B now starts near Cut Bank and continues south to the Great Falls terminus.
Old Alternative B Segment (3)	Original Alternative B near Bullhead Creek	Various small sections of this segment were modified to what is now the proposed alignment to better avoid residences and irrigated croplands, avoid wetlands, as well as to improve the alignment of the route with property boundaries.
Old Alternative B Segment (4)	Original Alternative B from Dry Fork of the Marias south to South Pondera Coulee	Various small sections of this segment were modified to what is now the proposed alignment to better avoid residences and irrigated croplands, as well as to improve the alignment of the route with property boundaries.
Original Route C	From Canadian Border to Great Falls	Original Route which was modified to what is labeled as "Modified Route C" (C2) below to better avoid residences and passage across irrigated croplands, as well as to improve the alignment of the route with property boundaries.

APPENDIX G-1 SUMMARY OF MATL'S DISMISSED ALTERNATIVES AND ALIGNMENT SEGMENTS		
Name of Alternatives or Segment	**Location**	**Reasons for Not Carrying Forward**
Modified Route C	From Canadian Border to Great Falls	The entire C2 routing was dismissed because it was the longest of the considered routes and would be the most costly to design/construct. More estimated acreage would be required (access roads, staging areas, etc.) than the Primary Route (43 acres versus 37 acres). Alternative C also had relatively higher potential impacts to visual resources (comes within 1 mile of 160 developed residences as compared to 146 for the Preferred Route). C2 also had a larger impact to prime farmland (44 miles versus 33 miles) and farmland of statewide importance (47 miles versus 43 miles) as compared to the Primary Route. In addition, this route did not match up with the finalized secondary Canadian border crossing alternative (moved to the east).
August Version Route C	From Canadian Border to Great Falls	This route was prepared for the MFSA application. This route was dismissed because it is the longest alternative, would require more disturbance, and very close to or crosses four houses.
Old Western Great Falls Alternative	Original agency alternative that connects with Great Falls to the south and west of the Primary Alternative	This alternative was originally identified in order to provide another alternative in the in the southern quarter of the project area that made wide use of rangeland instead of cropped land. However, this alternative was dropped/modified to what is labeled as W2 in order to avoid crossing the existing WAPA line and improve its alignment with property and section line boundaries.
Modified Western Great Falls Alternative	Modified agency alternative that connects with Great Falls to the south and west of the Primary Alternative	After flyover verification, this revised W2 alternative was developed to minimize deflections and parallel the WAPA line more closely. This alternative has been retained because of its use of range land and pasture as well as its more extensive use of section and property boundaries.
Cut Bank to Shelby Alternative	Alternative that follows from Cut Bank to Shelby	This alternative was dismissed in the original application due to the need for extended diagonal traversing of agricultural lands. This alternative also had more engineering requirements and land requirements, and would have resulted in higher project costs.
Shelby South Alternative	Alternative that follows from Shelby south to Great Falls	This alternative was dismissed in the original application due to engineering constraints and the potential for disturbing many more cultural and archaeological sites near the Maris River breaks area south of Shelby.
Eastern Alternative	Alternative that follows Interstate 15 from Border to Shelby	This alternative was dismissed in the original application due to difficulties with the connection required via the Shelby South alternative described above.
NWE Alternative	Rebuilds the existing NWE 115-kV line.	This alternative was dismissed in the original application. This route was considered infeasible for economic reasons, and there would also have been a logistical difficulty in maintaining service while upgrading the existing line.

APPENDIX H:
LAND USE TYPES BY MILEPOST

The following tables provide a breakdown of land uses along the alignments analyzed in the EIS. Mile posts run from south to north. The analysis was done with GIS based on photo interpretation of the land uses.

TABLE H- 1
LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2

Mile Post Begin	Mile Post End	Distance (Miles)[1]	Land Use
0.000	0.827	0.827	**Non-Irrigated**
0.827	0.865	0.038	**ROW**
0.865	1.142	0.277	**Non-Irrigated**
1.142	1.179	0.036	**Riparian**
1.179	1.358	0.180	**Rangeland/Native**
1.358	1.836	0.477	**Non-Irrigated**
1.836	2.800	0.964	**ROW**
2.800	3.770	0.971	**Non-Irrigated**
3.770	3.798	0.028	**ROW**
3.798	3.930	0.132	**Rangeland/Native**
3.930	4.471	0.541	**Non-Irrigated**
4.471	5.000	0.528	**Rangeland/Native**
5.000	5.044	0.044	**ROW**
5.044	5.490	0.446	**Rangeland/Native**
5.490	5.503	0.014	**ROW**
5.503	5.647	0.144	**Rangeland/Native**
5.647	5.654	0.007	**ROW**
5.654	5.756	0.102	**Rangeland/Native**
5.756	5.769	0.013	**ROW**
5.769	6.140	0.371	**Rangeland/Native**
6.140	6.450	0.310	**Non-Irrigated**
6.450	6.922	0.472	**Rangeland/Native**
6.922	11.329	4.406	**Non-Irrigated**
11.329	11.358	0.029	**ROW**
11.358	15.098	3.740	**Non-Irrigated**
15.098	15.125	0.027	**Rangeland/Native**
15.125	15.503	0.378	**Non-Irrigated**
15.503	15.508	0.005	**ROW**
15.508	15.960	0.451	**Non-Irrigated**
15.960	15.962	0.003	**ROW**
15.962	16.720	0.758	**Non-Irrigated**
16.720	16.725	0.005	**ROW**
16.725	17.639	0.914	**Non-Irrigated**
17.639	17.799	0.160	**Rangeland/Native**
17.799	18.197	0.398	**Non-Irrigated**
18.197	18.625	0.428	**Rangeland/Native**
18.625	18.637	0.012	**ROW**
18.637	19.550	0.913	**Rangeland/Native**
19.550	19.569	0.019	**ROW**
19.569	19.644	0.075	**Rangeland/Native**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
19.644	19.730	0.085	**Non-Irrigated**
19.730	19.741	0.011	**ROW**
19.741	21.662	1.921	**Rangeland/Native**
21.662	22.034	0.372	**Non-Irrigated**
22.034	22.050	0.016	**ROW**
22.050	22.585	0.536	**Non-Irrigated**
22.585	23.329	0.744	**Rangeland/Native**
23.329	23.347	0.018	**ROW**
23.347	23.824	0.477	**Rangeland/Native**
23.824	24.340	0.516	**Non-Irrigated**
24.340	24.348	0.009	**ROW**
24.348	25.338	0.990	**Non-Irrigated**
25.338	25.406	0.067	**Rangeland/Native**
25.406	25.784	0.378	**Non-Irrigated**
25.784	25.881	0.097	**Rangeland/Native**
25.881	27.750	1.869	**Non-Irrigated**
27.750	27.774	0.025	**ROW**
27.774	28.710	0.936	**Non-Irrigated**
28.710	28.738	0.028	**Riparian**
28.738	29.656	0.918	**Non-Irrigated**
29.656	29.703	0.047	**Rangeland/Native**
29.703	29.752	0.048	**Non-Irrigated**
29.752	29.789	0.037	**ROW**
29.789	29.975	0.186	**Non-Irrigated**
29.975	30.072	0.097	**Rangeland/Native**
30.072	30.498	0.427	**Non-Irrigated**
30.498	30.561	0.063	**Rangeland/Native**
30.561	31.442	0.881	**Non-Irrigated**
31.442	31.476	0.034	**Rangeland/Native**
31.476	31.492	0.016	**Riparian**
31.492	31.528	0.037	**Rangeland/Native**
31.528	31.719	0.191	**Non-Irrigated**
31.719	31.729	0.010	**ROW**
31.729	31.750	0.020	**Non-Irrigated**
31.750	31.756	0.007	**ROW**
31.756	31.934	0.178	**Non-Irrigated**
31.934	31.954	0.020	**Rangeland/Native**
31.954	33.588	1.634	**Non-Irrigated**
33.588	33.754	0.166	**Riparian**
33.754	34.135	0.381	**Non-Irrigated**
34.135	34.152	0.017	**ROW**
34.152	35.342	1.190	**Non-Irrigated**
35.342	35.562	0.220	**Rangeland/Native**
35.562	35.594	0.031	**Riparian**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
35.594	35.678	0.084	**Rangeland/Native**
35.678	35.838	0.160	**Non-Irrigated**
35.838	35.848	0.011	**Rangeland/Native**
35.848	36.097	0.249	**Non-Irrigated**
36.097	36.102	0.005	**ROW**
36.102	36.339	0.237	**Non-Irrigated**
36.339	36.388	0.049	**Rangeland/Native**
36.388	36.395	0.007	**Riparian**
36.395	36.561	0.166	**Rangeland/Native**
36.561	37.023	0.463	**Non-Irrigated**
37.023	37.237	0.214	**Rangeland/Native**
37.237	37.339	0.102	**Non-Irrigated**
37.339	37.369	0.030	**Rangeland/Native**
37.369	37.443	0.074	**Riparian**
37.443	37.452	0.010	**Rangeland/Native**
37.452	37.985	0.532	**Non-Irrigated**
37.985	38.335	0.350	**Rangeland/Native**
38.335	38.620	0.286	**Non-Irrigated**
38.620	39.053	0.432	**Rangeland/Native**
39.053	39.208	0.155	**Non-Irrigated**
39.208	39.275	0.067	**Rangeland/Native**
39.275	39.522	0.247	**Non-Irrigated**
39.522	39.838	0.317	**Rangeland/Native**
39.838	40.866	1.028	**Non-Irrigated**
40.866	40.881	0.015	**ROW**
40.881	41.158	0.277	**Non-Irrigated**
41.158	41.173	0.015	**ROW**
41.173	45.128	3.954	**Non-Irrigated**
45.128	45.141	0.013	**ROW**
45.141	45.250	0.109	**Non-Irrigated**
45.250	45.269	0.019	**ROW**
45.269	47.518	2.249	**Non-Irrigated**
47.518	47.543	0.025	**Riparian**
47.543	48.056	0.513	**Non-Irrigated**
48.056	48.142	0.087	**Rangeland/Native**
48.142	48.451	0.309	**Non-Irrigated**
48.451	48.465	0.013	**Riparian**
48.465	48.476	0.011	**ROW**
48.476	48.490	0.014	**Riparian**
48.490	48.499	0.009	**ROW**
48.499	49.161	0.662	**Non-Irrigated**
49.161	49.173	0.012	**ROW**
49.173	50.864	1.691	**Non-Irrigated**
50.864	50.885	0.020	**ROW**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
50.885	51.120	0.235	**Non-Irrigated**
51.120	51.170	0.051	**Riparian**
51.170	51.759	0.589	**Non-Irrigated**
51.759	51.833	0.074	**Rangeland/Native**
51.833	52.229	0.396	**Non-Irrigated**
52.229	52.249	0.020	**ROW**
52.249	52.748	0.499	**Non-Irrigated**
52.748	52.820	0.071	**Rangeland/Native**
52.820	52.883	0.064	**ROW**
52.883	53.043	0.160	**Rangeland/Native**
53.043	53.331	0.288	**Non-Irrigated**
53.331	53.723	0.392	**Rangeland/Native**
53.723	53.774	0.051	**Non-Irrigated**
53.774	53.803	0.028	**Rangeland/Native**
53.803	53.870	0.068	**Non-Irrigated**
53.870	53.912	0.042	**Riparian**
53.912	53.936	0.024	**Non-Irrigated**
53.936	53.983	0.046	**Riparian**
53.983	55.399	1.416	**Non-Irrigated**
55.399	55.425	0.026	**ROW**
55.425	55.906	0.481	**Non-Irrigated**
55.906	56.305	0.399	**Rangeland/Native**
56.305	56.347	0.042	**ROW**
56.347	56.536	0.189	**Non-Irrigated**
56.536	56.815	0.279	**Rangeland/Native**
56.815	56.857	0.042	**Non-Irrigated**
56.857	56.988	0.131	**Rangeland/Native**
56.988	57.355	0.367	**Non-Irrigated**
57.355	57.548	0.192	**Rangeland/Native**
57.548	57.669	0.121	**Non-Irrigated**
57.669	57.791	0.122	**Rangeland/Native**
57.791	57.833	0.042	**ROW**
57.833	57.898	0.065	**Non-Irrigated**
57.898	57.998	0.100	**Rangeland/Native**
57.998	58.032	0.033	**Non-Irrigated**
58.032	58.147	0.115	**Rangeland/Native**
58.147	58.437	0.290	**Non-Irrigated**
58.437	58.455	0.019	**Rangeland/Native**
58.455	58.470	0.015	**ROW**
58.470	58.547	0.077	**Rangeland/Native**
58.547	58.764	0.217	**Non-Irrigated**
58.764	58.800	0.036	**Rangeland/Native**
58.800	59.819	1.019	**Non-Irrigated**
59.819	59.840	0.021	**ROW**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
59.840	60.607	0.767	**Non-Irrigated**
60.607	60.642	0.036	**ROW**
60.642	60.779	0.136	**Non-Irrigated**
60.779	60.925	0.146	**Rangeland/Native**
60.925	61.538	0.614	**Non-Irrigated**
61.538	61.559	0.021	**ROW**
61.559	62.296	0.737	**Non-Irrigated**
62.296	62.317	0.021	**Rangeland/Native**
62.317	62.334	0.018	**Riparian**
62.334	62.385	0.051	**Rangeland/Native**
62.385	62.928	0.543	**Non-Irrigated**
62.928	62.939	0.011	**ROW**
62.939	63.747	0.808	**Non-Irrigated**
63.747	63.759	0.011	**ROW**
63.759	64.042	0.284	**Non-Irrigated**
64.042	64.052	0.010	**ROW**
64.052	64.316	0.264	**Non-Irrigated**
64.316	65.448	1.132	**Rangeland/Native**
65.448	65.991	0.543	**Non-Irrigated**
65.991	66.025	0.034	**ROW**
66.025	66.431	0.405	**Non-Irrigated**
66.431	66.989	0.558	**Rangeland/Native**
66.989	67.469	0.480	**Non-Irrigated**
67.469	67.478	0.008	**ROW**
67.478	68.135	0.658	**Non-Irrigated**
68.135	68.150	0.014	**Water**
68.150	69.55	1.400	**Non-Irrigated**
69.550	69.565	0.015	**Rangeland/Native**
69.565	69.582	0.016	**ROW**
69.582	69.796	0.214	**Irrigated**
69.796	69.820	0.024	**ROW**
69.820	70.181	0.361	**Irrigated**
70.181	70.188	0.007	**Water**
70.188	70.727	0.538	**Irrigated**
70.727	70.741	0.015	**Water**
70.741	71.569	0.828	**Non-Irrigated**
71.569	71.581	0.013	**ROW**
71.581	71.980	0.398	**Non-Irrigated**
71.980	72.002	0.022	**Riparian**
72.002	72.660	0.658	**Non-Irrigated**
72.660	72.681	0.021	**Riparian**
72.681	72.694	0.013	**Rangeland/Native**
72.694	72.702	0.007	**ROW**
72.702	72.784	0.082	**Rangeland/Native**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
72.784	72.808	0.025	**Riparian**
72.808	72.899	0.090	**Rangeland/Native**
72.899	73.148	0.249	**Non-Irrigated**
73.148	73.319	0.171	**Irrigated**
73.319	73.559	0.240	**Rangeland/Native**
73.559	73.576	0.017	**Water**
73.576	73.661	0.085	**Rangeland/Native**
73.661	73.700	0.039	**ROW**
73.700	73.897	0.197	**Non-Irrigated**
73.897	74.221	0.325	**Rangeland/Native**
74.221	74.917	0.695	**Non-Irrigated**
74.917	74.934	0.017	**Rangeland/Native**
74.934	75.789	0.855	**Non-Irrigated**
75.789	75.847	0.058	**Rangeland/Native**
75.847	76.590	0.743	**Non-Irrigated**
76.590	76.665	0.076	**Rangeland/Native**
76.665	76.868	0.203	**Non-Irrigated**
76.868	77.015	0.147	**Rangeland/Native**
77.015	77.045	0.030	**Non-Irrigated**
77.045	77.195	0.150	**Rangeland/Native**
77.195	77.289	0.094	**Non-Irrigated**
77.289	77.665	0.376	**Rangeland/Native**
77.665	77.740	0.075	**Non-Irrigated**
77.740	77.805	0.065	**Rangeland/Native**
77.805	77.866	0.061	**Non-Irrigated**
77.866	77.936	0.069	**Rangeland/Native**
77.936	77.979	0.043	**Non-Irrigated**
77.979	78.000	0.021	**Rangeland/Native**
78.000	78.065	0.065	**Non-Irrigated**
78.065	78.258	0.193	**Rangeland/Native**
78.258	78.371	0.113	**Non-Irrigated**
78.371	79.505	1.134	**Rangeland/Native**
79.505	79.746	0.242	**Non-Irrigated**
79.746	79.786	0.040	**Rangeland/Native**
79.786	79.794	0.008	**Riparian**
79.794	80.203	0.409	**Non-Irrigated**
80.203	80.894	0.692	**Rangeland/Native**
80.894	80.911	0.016	**ROW**
80.911	80.960	0.049	**Rangeland/Native**
80.960	80.968	0.009	**ROW**
80.968	81.189	0.221	**Rangeland/Native**
81.189	81.200	0.011	**Riparian**
81.200	81.340	0.140	**Rangeland/Native**
81.340	81.513	0.173	**Non-Irrigated**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
81.513	81.521	0.008	**ROW**
81.521	81.616	0.095	**Non-Irrigated**
81.616	81.624	0.008	**Water**
81.624	82.402	0.778	**Non-Irrigated**
82.402	82.424	0.022	**Rangeland/Native**
82.424	82.737	0.313	**Non-Irrigated**
82.737	82.808	0.071	**Rangeland/Native**
82.808	83.089	0.281	**Non-Irrigated**
83.089	83.094	0.005	**ROW**
83.094	84.288	1.195	**Non-Irrigated**
84.288	84.446	0.158	**Rangeland/Native**
84.446	84.468	0.022	**Non-Irrigated**
84.468	84.649	0.181	**Rangeland/Native**
84.649	84.802	0.154	**Non-Irrigated**
84.802	84.916	0.114	**Rangeland/Native**
84.916	85.218	0.302	**Non-Irrigated**
85.218	85.226	0.008	**ROW**
85.226	85.321	0.095	**Non-Irrigated**
85.321	85.460	0.138	**Irrigated**
85.460	85.823	0.364	**Rangeland/Native**
85.823	86.903	1.080	**Non-Irrigated**
86.903	86.909	0.006	**ROW**
86.909	87.508	0.599	**Non-Irrigated**
87.508	87.513	0.006	**ROW**
87.513	88.185	0.671	**Non-Irrigated**
88.185	88.228	0.044	**Rangeland/Native**
88.228	88.416	0.187	**Non-Irrigated**
88.416	89.181	0.766	**Rangeland/Native**
89.181	89.190	0.008	**ROW**
89.190	89.359	0.169	**Rangeland/Native**
89.359	89.371	0.012	**ROW**
89.371	89.745	0.375	**Rangeland/Native**
89.745	89.764	0.019	**Riparian**
89.764	89.804	0.040	**Water**
89.804	89.822	0.018	**Riparian**
89.822	89.992	0.170	**Rangeland/Native**
89.992	90.165	0.173	**Non-Irrigated**
90.165	90.219	0.054	**Rangeland/Native**
90.219	90.367	0.148	**Non-Irrigated**
90.367	90.739	0.372	**Rangeland/Native**
90.739	91.124	0.385	**Non-Irrigated**
91.124	91.137	0.013	**ROW**
91.137	91.692	0.555	**Non-Irrigated**
91.692	91.696	0.004	**ROW**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
91.696	91.940	0.244	**Non-Irrigated**
91.940	92.198	0.258	**Rangeland/Native**
92.198	92.575	0.378	**Non-Irrigated**
92.575	92.582	0.006	**ROW**
92.582	92.809	0.227	**Non-Irrigated**
92.809	92.813	0.005	**ROW**
92.813	93.913	1.100	**Rangeland/Native**
93.913	93.933	0.020	**ROW**
93.933	94.101	0.169	**Rangeland/Native**
94.101	94.138	0.037	**ROW**
94.138	94.920	0.782	**Rangeland/Native**
94.920	95.059	0.139	**Non-Irrigated**
95.059	95.828	0.769	**Rangeland/Native**
95.828	95.836	0.008	**Riparian**
95.836	96.061	0.225	**Rangeland/Native**
96.061	96.077	0.016	**Riparian**
96.077	97.026	0.949	**Rangeland/Native**
97.026	97.038	0.012	**Riparian**
97.038	98.837	1.799	**Rangeland/Native**
98.837	98.840	0.003	**ROW**
98.840	99.529	0.689	**Rangeland/Native**
99.529	99.532	0.003	**ROW**
99.532	99.893	0.361	**Non-Irrigated**
99.893	99.974	0.081	**ROW**
99.974	100.159	0.185	**Non-Irrigated**
100.159	100.164	0.005	**ROW**
100.164	101.103	0.939	**Non-Irrigated**
101.103	101.115	0.011	**ROW**
101.115	102.349	1.234	**Non-Irrigated**
102.349	102.354	0.005	**ROW**
102.354	102.518	0.165	**Non-Irrigated**
102.518	102.673	0.155	**Riparian**
102.673	102.942	0.269	**Non-Irrigated**
102.942	103.051	0.109	**Riparian**
103.051	103.565	0.514	**Non-Irrigated**
103.565	103.576	0.011	**ROW**
103.576	104.665	1.089	**Non-Irrigated**
104.665	104.672	0.007	**ROW**
104.672	108.203	3.530	**Non-Irrigated**
108.203	108.213	0.010	**ROW**
108.213	110.405	2.192	**Non-Irrigated**
110.405	110.434	0.029	**Riparian**
110.434	110.716	0.282	**Non-Irrigated**
110.716	110.735	0.019	**ROW**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
110.735	111.698	0.963	**Non-Irrigated**
111.698	111.836	0.138	**Rangeland/Native**
111.836	111.858	0.021	**ROW**
111.858	112.900	1.042	**Rangeland/Native**
112.900	113.374	0.474	**Non-Irrigated**
113.374	113.400	0.026	**ROW**
113.400	114.031	0.631	**Non-Irrigated**
114.031	114.082	0.051	**Rangeland/Native**
114.082	114.641	0.559	**Non-Irrigated**
114.641	114.898	0.257	**Rangeland/Native**
114.898	114.907	0.009	**ROW**
114.907	116.412	1.505	**Non-Irrigated**
116.412	116.417	0.004	**ROW**
116.417	117.304	0.888	**Non-Irrigated**
117.304	117.321	0.017	**Riparian**
117.321	117.643	0.321	**Non-Irrigated**
117.643	117.779	0.136	**Riparian**
117.779	117.904	0.125	**Rangeland/Native**
117.904	117.919	0.015	**ROW**
117.919	118.334	0.415	**Non-Irrigated**
118.334	118.676	0.342	**Rangeland/Native**
118.676	118.914	0.238	**Non-Irrigated**
118.914	118.917	0.003	**ROW**
118.917	120.155	1.238	**Non-Irrigated**
120.155	120.172	0.017	**ROW**
120.172	120.715	0.543	**Non-Irrigated**
120.715	120.748	0.033	**Riparian**
120.748	121.663	0.915	**Non-Irrigated**
121.663	124.585	2.923	**Rangeland/Native**
124.585	125.515	0.929	**Non-Irrigated**
125.515	125.532	0.018	**ROW**
125.532	127.454	1.922	**Non-Irrigated**
127.454	127.491	0.037	**Rangeland/Native**
127.491	127.833	0.342	**Non-Irrigated**
127.833	127.852	0.020	**Riparian**
127.852	127.868	0.016	**Non-Irrigated**
127.868	127.904	0.036	**Riparian**
127.904	128.020	0.116	**Non-Irrigated**
128.020	128.030	0.011	**ROW**
128.030	128.145	0.115	**Non-Irrigated**
128.145	128.166	0.020	**Rangeland/Native**
128.166	128.226	0.060	**Riparian**
128.226	128.303	0.077	**Rangeland/Native**
128.303	128.355	0.052	**Riparian**

TABLE H- 1 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
128.355	128.383	0.029	**Rangeland/Native**
128.383	129.349	0.966	**Non-Irrigated**
129.349	129.363	0.014	**Rangeland/Native**
129.363	129.883	0.520	**Non-Irrigated**
0.000	129.883	129.883	**Total**

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

DEQ has developed alternative alignments for Alternative 2 to reduce some of the effects on farming. Table H-2 through Table H-12 indicate the mileposts in Alternative 2 and the land use associated with the potential realignment.

TABLE H- 2
DIAMOND VALLEY MIDDLE
(REPLACES ALTERNATIVE 2 MILEPOST 30.519 TO 36.734)

Mile Post Begin	Mile Post End	Distance (Miles)[1]	Land Use
0.000	0.037	0.037	**Rangeland/Native**
0.037	0.919	0.882	**Non-Irrigated**
0.919	0.952	0.033	**Rangeland/Native**
0.952	0.963	0.011	**Riparian**
0.963	1.000	0.037	**Rangeland/Native**
1.000	1.195	0.194	**Non-Irrigated**
1.195	1.205	0.010	**ROW**
1.205	1.215	0.011	**Non-Irrigated**
1.215	1.231	0.016	**ROW**
1.231	4.220	2.989	**Non-Irrigated**
4.220	4.303	0.084	**Riparian**
4.303	5.186	0.883	**Non-Irrigated**
5.186	5.193	0.006	**ROW**
5.193	6.101	0.909	**Non-Irrigated**
6.101	6.518	0.416	**Rangeland/Native**
6.518	7.177	0.659	**Non-Irrigated**
7.177	7.399	0.222	**Rangeland/Native**
7.399	7.571	0.172	**Non-Irrigated**
0.000	7.571	7.571	**Total**

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 3 DIAMOND VALLEY NORTH (REPLACES ALTERNATIVE 2 MILEPOST 30.519 TO 36.734)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.040	0.040	Rangeland/Native
0.040	0.922	0.882	Non-Irrigated
0.922	0.957	0.034	Rangeland/Native
0.957	0.967	0.010	Riparian
0.967	1.006	0.039	Rangeland/Native
1.006	1.200	0.194	Non-Irrigated
1.200	1.213	0.013	ROW
1.213	1.441	0.228	Non-Irrigated
1.441	1.485	0.044	Rangeland/Native
1.485	2.215	0.729	Non-Irrigated
2.215	2.221	0.007	ROW
2.221	3.209	0.988	Non-Irrigated
3.209	3.224	0.015	ROW
3.224	3.764	0.540	Non-Irrigated
3.764	3.842	0.077	Rangeland/Native
3.842	3.847	0.005	ROW
3.847	3.990	0.143	Non-Irrigated
3.990	4.088	0.099	Rangeland/Native
4.088	5.746	1.658	Non-Irrigated
5.746	5.753	0.006	Rangeland/Native
5.753	5.764	0.011	ROW
5.764	6.324	0.560	Non-Irrigated
6.324	6.681	0.358	Rangeland/Native
6.681	6.687	0.006	Riparian
6.687	6.839	0.151	Rangeland/Native
6.839	7.317	0.478	Non-Irrigated
7.317	7.321	0.005	ROW
7.321	7.387	0.065	Non-Irrigated
7.387	7.680	0.294	Rangeland/Native
7.680	7.875	0.194	Non-Irrigated
0	7.875	7.875	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 4 DIAMOND VALLEY SOUTH (REPLACES ALTERNATIVE 2 MILEPOST 30.519 TO 36.734)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.025	0.025	Rangeland/Native
0.025	0.333	0.309	Non-Irrigated
0.333	0.428	0.095	Rangeland/Native
0.428	0.448	0.020	Riparian
0.448	0.616	0.168	Rangeland/Native
0.616	2.381	1.765	Non-Irrigated
2.381	2.482	0.101	Rangeland/Native
2.482	2.577	0.217	Non-Irrigated
2.577	2.699	0.217	Rangeland/Native
2.699	2.737	0.037	Non-Irrigated
2.737	2.746	0.010	Riparian
2.746	2.761	0.015	Non-Irrigated
2.761	3.070	0.309	Rangeland/Native
3.070	3.081	0.010	ROW
3.081	3.577	0.496	Rangeland/Native
3.577	5.032	1.455	Non-Irrigated
5.032	5.045	0.013	ROW
5.045	5.882	0.837	Non-Irrigated
5.882	6.199	0.317	Rangeland/Native
6.199	6.282	0.083	Non-Irrigated
6.282	6.292	0.010	Rangeland/Native
6.292	6.297	0.005	Riparian
6.297	6.322	0.025	Rangeland/Native
6.322	7.041	0.719	Non-Irrigated
7.041	7.044	0.003	ROW
7.044	7.178	0.134	Non-Irrigated
7.178	7.266	0.087	Rangeland/Native
7.266	7.269	0.004	Riparian
7.269	7.543	0.273	Rangeland/Native
7.543	7.686	0.144	Non-Irrigated
7.686	7.890	0.204	Rangeland/Native
7.890	8.028	0.138	Non-Irrigated
0.000	8.028	8.245	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 5 TETON RIVER CROSSING (REPLACES ALTERNATIVE 2 MILEPOST 37.240 TO 37.984)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.170	0.170	Non-Irrigated
0.170	0.179	0.009	Rangeland/Native
0.179	0.190	0.011	Forest Total
0.190	0.263	0.073	Riparian
0.263	0.275	0.012	Water
0.275	0.285	0.010	Riparian
0.285	0.892	0.606	Rangeland/Native
0.000	0.892	0.892	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 6 SOUTHEAST OF CONRAD (REPLACES ALTERNATIVE 2 MILEPOST 53.723 TO 56.629)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.054	0.054	Non-Irrigated
0.054	0.077	0.023	Rangeland/Native
0.077	0.168	0.091	Non-Irrigated
0.168	0.181	0.013	Rangeland/Native
0.181	0.250	0.069	Non-Irrigated
0.250	0.275	0.025	Riparian
0.275	0.637	0.362	Non-Irrigated
0.637	0.671	0.035	Rangeland/Native
0.671	0.687	0.015	Non-Irrigated
0.687	0.738	0.051	Rangeland/Native
0.738	0.746	0.008	Non-Irrigated
0.746	1.062	0.316	Rangeland/Native
1.062	1.096	0.034	ROW
1.096	1.312	0.216	Rangeland/Native
1.312	1.525	0.214	Non-Irrigated
1.525	2.010	0.484	Rangeland/Native
2.010	2.073	0.063	Non-Irrigated
2.073	2.645	0.572	Rangeland/Native
2.645	2.693	0.048	ROW
2.693	2.893	0.201	Non-Irrigated
2.893	2.987	0.093	Rangeland/Native
0.000	2.987	2.987	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 7 WEST OF CONRAD (REPLACES ALTERNATIVE 2 MILEPOST 62.307 TO 63.755)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.638	0.638	Rangeland/Native
0.638	0.641	0.004	ROW
0.641	1.210	0.568	Non-Irrigated
1.210	1.225	0.015	ROW
1.225	1.954	0.729	Non-Irrigated
0.000	1.954	1.954	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 8 NORTHWEST OF CONRAD (REPLACES ALTERNATIVE 2 MILEPOST 66.735 TO 69.505)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.283	0.283	Rangeland/Native
0.283	0.763	0.481	Non-Irrigated
0.763	0.774	0.010	ROW
0.774	1.147	0.374	Non-Irrigated
1.147	1.452	0.305	Rangeland/Native
1.452	1.465	0.012	ROW
1.465	1.536	0.071	Rangeland/Native
1.536	1.786	0.250	Non-Irrigated
1.786	2.540	0.754	Rangeland/Native
2.540	2.891	0.350	Non-Irrigated
0	2.891	2.891	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 9 BELGIAN HILL (REPLACES ALTERNATIVE 2 MILEPOST 71.237 TO 73.661)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.432	0.432	Non-Irrigated
0.432	0.444	0.012	ROW
0.444	0.740	0.296	Non-Irrigated
0.740	0.749	0.009	Water
0.749	0.767	0.018	Rangeland/Native
0.767	1.401	0.634	Non-Irrigated
1.401	1.422	0.021	Riparian
1.422	1.470	0.048	Non-Irrigated
1.470	1.480	0.010	ROW
1.480	1.573	0.093	Non-Irrigated
1.573	1.693	0.120	Rangeland/Native
1.693	1.932	0.239	Non-Irrigated
1.932	2.130	0.198	Irrigation Total
2.130	2.236	0.106	Rangeland/Native
2.236	2.244	0.009	Water
2.244	2.548	0.303	Rangeland/Native
0.000	2.548	2.548	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 10 BULLHEAD COULEE SOUTH (REPLACES ALTERNATIVE 2 MILEPOST 76.374 TO 77.740)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.185	0.185	Non-Irrigated
0.185	0.415	0.230	Rangeland/Native
0.415	1.138	0.724	Non-Irrigated
1.138	1.652	0.514	Rangeland/Native
1.652	1.714	0.062	Non-Irrigated
0.000	1.714	1.714	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 11 BULLHEAD COULEE NORTH (REPLACES ALTERNATIVE 2 MILEPOST 82.089 TO 83.709)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.998	0.998	Non-Irrigated
0.998	1.004	0.006	ROW
1.004	1.646	0.643	Non-Irrigated
0.000	1.646	1.646	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 12 SOUTH OF CUT BANK (REPLACES ALTERNATIVE 2 MILEPOST 97.227 TO 99.532)			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.739	0.739	Rangeland/Native
0.739	0.745	0.006	ROW
0.745	1.513	0.768	Rangeland/Native
1.513	1.519	0.006	ROW
1.519	2.405	0.886	Rangeland/Native
2.405	2.411	0.006	ROW
2.411	2.447	0.036	Rangeland/Native
2.447	2.455	0.008	ROW
0.000	2.455	2.455	Total

[1] Subtracting the beginning miles from the ending miles does not necessarily equal the total miles displayed due to rounding.

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.040	0.040	Non-Irrigated
0.040	0.568	0.527	Rangeland/Native
0.568	0.586	0.019	Riparian
0.586	0.650	0.064	Rangeland/Native
0.650	0.654	0.004	Riparian
0.654	0.670	0.016	Rangeland/Native
0.670	0.673	0.002	ROW
0.673	0.694	0.021	Rangeland/Native
0.694	0.697	0.003	ROW
0.697	0.733	0.037	Rangeland/Native
0.733	0.739	0.006	ROW
0.739	0.755	0.016	Rangeland/Native
0.755	0.774	0.018	Non-Irrigated
0.774	0.783	0.009	Rangeland/Native
0.783	0.925	0.142	ROW
0.925	2.312	1.387	Non-Irrigated
2.312	2.339	0.027	ROW
2.339	3.310	0.971	Non-Irrigated
3.310	3.338	0.028	ROW
3.338	3.465	0.128	Rangeland/Native
3.465	4.008	0.543	Non-Irrigated
4.008	4.540	0.532	Rangeland/Native
4.540	4.583	0.043	ROW
4.583	5.029	0.446	Rangeland/Native
5.029	5.042	0.014	ROW
5.042	5.186	0.144	Rangeland/Native
5.186	5.193	0.007	ROW

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
5.193	5.296	0.102	Rangeland/Native
5.296	5.308	0.013	ROW
5.308	5.677	0.369	Rangeland/Native
5.677	5.989	0.312	Non-Irrigated
5.989	6.464	0.475	Rangeland/Native
6.464	10.741	4.278	Non-Irrigated
10.741	10.762	0.020	ROW
10.762	14.869	4.107	Non-Irrigated
14.869	14.888	0.019	ROW
14.888	19.022	4.134	Non-Irrigated
19.022	19.102	0.080	Rangeland/Native
19.102	19.256	0.155	Non-Irrigated
19.256	19.268	0.012	ROW
19.268	19.481	0.213	Non-Irrigated
19.481	19.510	0.028	Rangeland/Native
19.510	20.914	1.405	Non-Irrigated
20.914	20.980	0.066	Rangeland/Native
20.980	21.060	0.080	Riparian
21.060	21.119	0.058	Rangeland/Native
21.119	21.772	0.653	Non-Irrigated
21.772	21.837	0.066	Rangeland/Native
21.837	21.885	0.048	Riparian
21.885	22.159	0.274	Rangeland/Native
22.159	22.801	0.642	Non-Irrigated
22.801	22.807	0.006	ROW
22.807	23.362	0.555	Non-Irrigated
23.362	23.379	0.017	Rangeland/Native
23.379	23.664	0.285	Non-Irrigated
23.664	23.678	0.014	ROW
23.678	23.733	0.055	Rangeland/Native
23.733	23.769	0.035	Riparian
23.769	23.883	0.115	Rangeland/Native
23.883	24.511	0.627	Non-Irrigated
24.511	24.542	0.031	ROW
24.542	24.819	0.277	Non-Irrigated
24.819	24.864	0.046	Riparian
24.864	25.128	0.264	Non-Irrigated
25.128	25.140	0.011	ROW
25.140	26.315	1.175	Non-Irrigated
26.315	26.383	0.068	Rangeland/Native
26.383	26.398	0.015	Riparian
26.398	26.410	0.012	Rangeland/Native
26.410	26.770	0.360	Non-Irrigated
26.770	26.777	0.007	ROW

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
26.777	27.620	0.843	Non-Irrigated
27.620	27.638	0.018	ROW
27.638	27.820	0.182	Non-Irrigated
27.820	27.827	0.007	ROW
27.827	28.365	0.538	Non-Irrigated
28.365	28.389	0.024	Riparian
28.389	28.725	0.336	Non-Irrigated
28.725	28.742	0.017	Riparian
28.742	28.986	0.244	Non-Irrigated
28.986	28.997	0.011	ROW
28.997	30.349	1.352	Non-Irrigated
30.349	30.363	0.014	ROW
30.363	30.834	0.472	Non-Irrigated
30.834	30.869	0.035	Riparian
30.869	31.699	0.830	Non-Irrigated
31.699	31.711	0.012	ROW
31.711	32.241	0.529	Non-Irrigated
32.241	32.266	0.026	Rangeland/Native
32.266	32.304	0.038	Non-Irrigated
32.304	32.454	0.150	Rangeland/Native
32.454	32.470	0.015	Riparian
32.470	32.717	0.248	Rangeland/Native
32.717	33.010	0.292	Non-Irrigated
33.010	33.021	0.011	ROW
33.021	33.093	0.072	Non-Irrigated
33.093	33.723	0.630	Rangeland/Native
33.723	33.828	0.105	Riparian
33.828	33.862	0.034	Forest
33.862	34.097	0.235	Rangeland/Native
34.097	36.462	2.366	Non-Irrigated
36.462	36.473	0.010	ROW
36.473	36.890	0.417	Non-Irrigated
36.890	36.903	0.014	ROW
36.903	38.477	1.574	Non-Irrigated
38.477	38.492	0.015	ROW
38.492	41.334	2.841	Non-Irrigated
41.334	41.355	0.022	ROW
41.355	42.421	1.066	Non-Irrigated
42.421	42.436	0.015	ROW
42.436	44.327	1.891	Non-Irrigated
44.327	44.344	0.017	Riparian
44.344	44.627	0.284	Non-Irrigated
44.627	44.663	0.035	Rangeland/Native
44.663	44.759	0.096	Non-Irrigated

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
44.759	44.770	0.011	ROW
44.770	45.017	0.247	Non-Irrigated
45.017	45.032	0.015	ROW
45.032	45.188	0.156	Non-Irrigated
45.188	45.199	0.010	ROW
45.199	45.953	0.754	Non-Irrigated
45.953	45.968	0.015	ROW
45.968	47.526	1.558	Non-Irrigated
47.526	47.543	0.017	ROW
47.543	47.785	0.242	Non-Irrigated
47.785	47.865	0.079	Rangeland/Native
47.865	47.905	0.040	Riparian
47.905	47.929	0.024	Water
47.929	48.144	0.216	Non-Irrigated
48.144	48.362	0.217	Agriculture
48.362	48.513	0.151	Rangeland/Native
48.513	48.533	0.020	Riparian
48.533	48.994	0.461	Non-Irrigated
48.994	49.015	0.021	ROW
49.015	49.321	0.307	Non-Irrigated
49.321	49.505	0.184	Rangeland/Native
49.505	49.542	0.037	Riparian
49.542	49.690	0.147	Rangeland/Native
49.690	49.724	0.035	Riparian
49.724	49.755	0.031	Rangeland/Native
49.755	49.773	0.017	Riparian
49.773	50.053	0.280	Non-Irrigated
50.053	50.173	0.120	ROW
50.173	50.222	0.049	Non-Irrigated
50.222	50.238	0.016	Rangeland/Native
50.238	50.288	0.050	Non-Irrigated
50.288	50.335	0.046	Rangeland/Native
50.335	50.434	0.099	Non-Irrigated
50.434	50.463	0.029	Rangeland/Native
50.463	50.733	0.270	Non-Irrigated
50.733	50.811	0.078	Rangeland/Native
50.811	51.996	1.186	Non-Irrigated
51.996	52.018	0.022	ROW
52.018	52.522	0.504	Non-Irrigated
52.522	52.531	0.009	Rangeland/Native
52.531	52.536	0.006	ROW
52.536	52.871	0.335	Rangeland/Native
52.871	52.906	0.035	ROW
52.906	53.081	0.175	Non-Irrigated

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
53.081	53.394	0.313	Rangeland/Native
53.394	53.534	0.139	Non-Irrigated
53.534	53.574	0.040	Rangeland/Native
53.574	53.920	0.346	Non-Irrigated
53.920	53.932	0.012	ROW
53.932	54.045	0.112	Rangeland/Native
54.045	54.162	0.118	Non-Irrigated
54.162	54.209	0.047	Rangeland/Native
54.209	54.216	0.007	ROW
54.216	54.236	0.020	Rangeland/Native
54.236	54.290	0.054	Non-Irrigated
54.290	54.376	0.087	Rangeland/Native
54.376	55.640	1.264	Non-Irrigated
55.640	55.657	0.017	ROW
55.657	56.997	1.340	Non-Irrigated
56.997	57.016	0.019	ROW
57.016	57.170	0.154	Non-Irrigated
57.170	57.179	0.010	ROW
57.179	57.224	0.044	Non-Irrigated
57.224	57.262	0.038	Residential
57.262	57.332	0.070	ROW
57.332	58.006	0.674	Non-Irrigated
58.006	58.097	0.091	Rangeland/Native
58.097	58.122	0.024	Riparian
58.122	58.151	0.029	Water
58.151	58.181	0.031	Riparian
58.181	58.310	0.129	Non-Irrigated
58.310	58.393	0.083	Rangeland/Native
58.393	58.478	0.085	Riparian
58.478	58.516	0.038	Rangeland/Native
58.516	58.686	0.170	Non-Irrigated
58.686	58.689	0.003	Water
58.689	58.954	0.264	Irrigated
58.954	58.962	0.008	ROW
58.962	59.925	0.963	Irrigated
59.925	59.936	0.011	ROW
59.936	59.981	0.044	Non-Irrigated
59.981	59.992	0.012	ROW
59.992	60.843	0.850	Non-Irrigated
60.843	61.611	0.768	Rangeland/Native
61.611	62.234	0.624	Non-Irrigated
62.234	62.243	0.008	ROW
62.243	62.393	0.150	Rangeland/Native
62.393	62.408	0.015	Riparian

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
62.408	62.454	0.046	Rangeland/Native
62.454	62.563	0.109	Riparian
62.563	62.631	0.068	Rangeland/Native
62.631	62.988	0.357	Irrigated
62.988	63.016	0.027	Riparian
63.016	63.126	0.111	Non-Irrigated
63.126	63.132	0.006	ROW
63.132	63.382	0.250	Non-Irrigated
63.382	63.390	0.008	ROW
63.390	63.722	0.332	Non-Irrigated
63.722	63.739	0.016	Rangeland/Native
63.739	64.004	0.266	Non-Irrigated
64.004	64.013	0.009	ROW
64.013	65.169	1.156	Non-Irrigated
65.169	65.272	0.104	Rangeland/Native
65.272	65.613	0.341	Non-Irrigated
65.613	65.650	0.037	Rangeland/Native
65.650	65.900	0.251	Non-Irrigated
65.900	66.144	0.244	Rangeland/Native
66.144	66.157	0.012	Riparian
66.157	66.208	0.051	Rangeland/Native
66.208	66.404	0.196	Irrigated
66.404	66.470	0.066	Non-Irrigated
66.470	66.486	0.016	Riparian
66.486	66.512	0.026	Rangeland/Native
66.512	66.523	0.011	ROW
66.523	66.940	0.417	Non-Irrigated
66.940	67.000	0.060	Rangeland/Native
67.000	67.085	0.086	Non-Irrigated
67.085	67.121	0.036	Rangeland/Native
67.121	67.285	0.164	Riparian
67.285	67.317	0.032	Rangeland/Native
67.317	67.353	0.037	Riparian
67.353	67.548	0.194	Rangeland/Native
67.548	67.562	0.014	Riparian
67.562	67.697	0.135	Rangeland/Native
67.697	67.716	0.019	ROW
67.716	67.775	0.058	Riparian
67.775	67.893	0.119	Rangeland/Native
67.893	68.639	0.746	Non-Irrigated
68.639	68.652	0.013	ROW
68.652	68.688	0.036	Residential
68.688	68.767	0.079	Non-Irrigated
68.767	68.792	0.025	Riparian

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
68.792	68.848	0.055	Non-Irrigated
68.848	68.871	0.023	Riparian
68.871	68.889	0.018	Non-Irrigated
68.889	68.910	0.021	Riparian
68.910	69.104	0.194	Non-Irrigated
69.104	69.115	0.010	ROW
69.115	69.379	0.265	Non-Irrigated
69.379	69.407	0.028	Riparian
69.407	69.498	0.090	Non-Irrigated
69.498	69.652	0.155	Rangeland/Native
69.652	70.519	0.867	Non-Irrigated
70.519	70.533	0.014	Riparian
70.533	70.568	0.035	Rangeland/Native
70.568	70.876	0.308	Irrigated
70.876	70.890	0.014	Rangeland/Native
70.890	70.907	0.017	ROW
70.907	70.928	0.022	Rangeland/Native
70.928	71.352	0.424	Irrigated
71.352	71.384	0.032	ROW
71.384	71.628	0.244	Irrigated
71.628	71.672	0.043	Riparian
71.672	71.990	0.318	Non-Irrigated
71.990	71.997	0.007	ROW
71.997	72.270	0.273	Non-Irrigated
72.270	72.395	0.125	Irrigated
72.395	72.585	0.189	Non-Irrigated
72.585	72.599	0.015	Riparian
72.599	73.077	0.477	Non-Irrigated
73.077	73.082	0.005	ROW
73.082	73.491	0.409	Non-Irrigated
73.491	73.500	0.009	Riparian
73.500	73.993	0.493	Non-Irrigated
73.993	74.017	0.024	ROW
74.017	74.160	0.143	Non-Irrigated
74.160	74.170	0.010	ROW
74.170	74.440	0.270	Non-Irrigated
74.440	74.668	0.228	Rangeland/Native
74.668	75.189	0.521	Non-Irrigated
75.189	75.215	0.026	Riparian
75.215	75.459	0.245	Irrigated
75.459	75.467	0.008	ROW
75.467	75.705	0.238	Non-Irrigated
75.705	75.777	0.072	Rangeland/Native
75.777	75.801	0.025	Riparian

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
75.801	75.876	0.074	Rangeland/Native
75.876	75.897	0.021	Riparian
75.897	76.026	0.129	Rangeland/Native
76.026	76.190	0.165	Non-Irrigated
76.190	76.202	0.011	ROW
76.202	76.356	0.155	Non-Irrigated
76.356	76.362	0.006	Water
76.362	77.235	0.873	Non-Irrigated
77.235	77.247	0.012	ROW
77.247	77.521	0.274	Non-Irrigated
77.521	77.532	0.011	Rangeland/Native
77.532	77.666	0.134	Non-Irrigated
77.666	77.670	0.003	Rangeland/Native
77.670	77.679	0.009	ROW
77.679	78.712	1.033	Non-Irrigated
78.712	78.737	0.025	ROW
78.737	78.908	0.171	Rangeland/Native
78.908	79.324	0.416	Non-Irrigated
79.324	79.330	0.005	Rangeland/Native
79.330	79.637	0.307	Non-Irrigated
79.637	79.645	0.008	Water
79.645	79.707	0.062	Rangeland/Native
79.707	79.884	0.177	Non-Irrigated
79.884	79.904	0.021	Riparian
79.904	79.973	0.068	Non-Irrigated
79.973	79.991	0.018	ROW
79.991	80.417	0.426	Non-Irrigated
80.417	80.646	0.228	Irrigated
80.646	82.121	1.476	Non-Irrigated
82.121	82.149	0.028	ROW
82.149	82.188	0.039	Non-Irrigated
82.188	82.192	0.004	ROW
82.192	83.429	1.237	Non-Irrigated
83.429	83.703	0.274	Rangeland/Native
83.703	83.712	0.009	ROW
83.712	84.350	0.639	Rangeland/Native
84.350	84.376	0.026	Non-Irrigated
84.376	84.425	0.048	Rangeland/Native
84.425	84.509	0.084	Forest
84.509	84.572	0.063	Water
84.572	84.728	0.156	Rangeland/Native
84.728	85.425	0.697	Non-Irrigated
85.425	85.458	0.033	Rangeland/Native
85.458	85.937	0.479	Non-Irrigated

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
85.937	85.948	0.011	ROW
85.948	86.508	0.560	Non-Irrigated
86.508	86.512	0.004	ROW
86.512	86.798	0.286	Non-Irrigated
86.798	87.075	0.277	Rangeland/Native
87.075	87.570	0.495	Non-Irrigated
87.570	87.588	0.017	Rangeland/Native
87.588	87.595	0.007	ROW
87.595	87.622	0.027	Non-Irrigated
87.622	87.625	0.003	Rangeland/Native
87.625	87.630	0.004	ROW
87.630	88.753	1.123	Rangeland/Native
88.753	88.769	0.016	ROW
88.769	88.981	0.212	Rangeland/Native
88.981	88.985	0.004	ROW
88.985	89.060	0.075	Rangeland/Native
89.060	89.096	0.037	ROW
89.096	89.119	0.023	Rangeland/Native
89.119	89.123	0.005	ROW
89.123	89.157	0.033	Rangeland/Native
89.157	89.172	0.015	Riparian
89.172	89.195	0.023	Rangeland/Native
89.195	89.222	0.027	ROW
89.222	89.470	0.248	Rangeland/Native
89.470	89.523	0.053	ROW
89.523	90.569	1.046	Rangeland/Native
90.569	90.575	0.006	Riparian
90.575	90.886	0.311	Rangeland/Native
90.886	90.903	0.017	Riparian
90.903	93.693	2.789	Rangeland/Native
93.693	93.698	0.006	ROW
93.698	94.386	0.687	Rangeland/Native
94.386	94.390	0.004	ROW
94.390	94.749	0.359	Non-Irrigated
94.749	94.833	0.084	ROW
94.833	95.017	0.184	Non-Irrigated
95.017	95.021	0.004	ROW
95.021	95.961	0.940	Non-Irrigated
95.961	95.968	0.007	ROW
95.968	97.205	1.237	Non-Irrigated
97.205	97.211	0.006	ROW
97.211	97.327	0.117	Non-Irrigated
97.327	97.375	0.048	Agriculture
97.375	97.532	0.157	Riparian

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
97.532	97.796	0.264	Non-Irrigated
97.796	97.909	0.112	Riparian
97.909	98.424	0.515	Non-Irrigated
98.424	98.435	0.011	ROW
98.435	99.522	1.087	Non-Irrigated
99.522	99.529	0.007	ROW
99.529	102.368	2.839	Non-Irrigated
102.368	102.390	0.022	Rangeland/Native
102.390	103.023	0.633	Non-Irrigated
103.023	103.038	0.016	ROW
103.038	105.525	2.486	Non-Irrigated
105.525	105.539	0.015	ROW
105.539	106.282	0.743	Non-Irrigated
106.282	106.950	0.668	Rangeland/Native
106.950	106.971	0.021	Riparian
106.971	107.536	0.565	Rangeland/Native
107.536	107.539	0.003	ROW
107.539	108.554	1.015	Non-Irrigated
108.554	108.558	0.004	ROW
108.558	109.550	0.991	Non-Irrigated
109.550	109.564	0.015	ROW
109.564	109.993	0.429	Non-Irrigated
109.993	109.997	0.004	ROW
109.997	110.631	0.634	Non-Irrigated
110.631	110.680	0.049	Rangeland/Native
110.680	110.843	0.163	Non-Irrigated
110.843	110.847	0.004	ROW
110.847	111.645	0.798	Non-Irrigated
111.645	111.910	0.265	Rangeland/Native
111.910	112.067	0.156	Non-Irrigated
112.067	113.597	1.530	Rangeland/Native
113.597	114.088	0.492	Non-Irrigated
114.088	114.339	0.251	Rangeland/Native
114.339	115.431	1.092	Non-Irrigated
115.431	115.491	0.060	Rangeland/Native
115.491	115.539	0.048	ROW
115.539	115.670	0.130	Rangeland/Native
115.670	117.245	1.575	Non-Irrigated
117.245	117.308	0.063	Rangeland/Native
117.308	117.325	0.017	Riparian
117.325	117.514	0.189	Rangeland/Native
117.514	118.198	0.684	Non-Irrigated
118.198	118.230	0.033	Riparian
118.230	118.762	0.532	Rangeland/Native

TABLE H- 13 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
118.762	118.777	0.015	ROW
118.777	119.750	0.974	Non-Irrigated
119.750	119.766	0.015	ROW
119.766	119.957	0.192	Non-Irrigated
119.957	119.975	0.018	Rangeland/Native
119.975	120.080	0.105	Non-Irrigated
120.080	120.109	0.029	Rangeland/Native
120.109	120.268	0.159	Non-Irrigated
120.268	120.272	0.003	ROW
120.272	121.594	1.322	Non-Irrigated
121.594	121.621	0.027	Rangeland/Native
0	121.621	121.621	Total

[1] Subtracting the beginning Distance (Miles)1 from the ending Distance (Miles)1 does not necessarily equal the total Distance (Miles)1 displayed due to rounding.

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
0.000	0.126	0.126	Non-Irrigated
0.126	0.734	0.608	Rangeland/Native
0.734	0.782	0.048	Riparian
0.782	0.817	0.035	Rangeland/Native
0.817	0.823	0.006	ROW
0.823	0.872	0.049	Rangeland/Native
0.872	2.552	1.680	Non-Irrigated
2.552	2.566	0.014	ROW
2.566	2.692	0.125	Non-Irrigated
2.692	2.706	0.014	ROW
2.706	3.153	0.447	Non-Irrigated
3.153	3.662	0.509	Rangeland/Native
3.662	3.685	0.024	ROW
3.685	4.044	0.359	Non-Irrigated
4.044	4.854	0.810	Rangeland/Native
4.854	5.090	0.236	Non-Irrigated
5.090	5.468	0.378	Rangeland/Native
5.468	5.521	0.054	Non-Irrigated
5.521	5.802	0.280	Rangeland/Native
5.802	5.817	0.015	Riparian
5.817	6.016	0.199	Non-Irrigated
6.016	6.330	0.314	Rangeland/Native
6.330	6.337	0.007	ROW
6.337	6.833	0.496	Rangeland/Native
6.833	6.838	0.005	ROW
6.838	7.281	0.443	Rangeland/Native
7.281	7.450	0.169	Non-Irrigated
7.450	8.052	0.602	Rangeland/Native
8.052	8.061	0.009	Riparian
8.061	9.941	1.880	Rangeland/Native
9.941	9.955	0.014	ROW
9.955	10.097	0.142	Rangeland/Native
10.097	10.250	0.153	Non-Irrigated
10.250	10.569	0.319	Rangeland/Native
10.569	10.575	0.006	Riparian
10.575	11.714	1.138	Rangeland/Native
11.714	11.722	0.008	Riparian
11.722	11.991	0.269	Rangeland/Native
11.991	12.411	0.421	Non-Irrigated
12.411	12.770	0.359	Rangeland/Native
12.770	12.969	0.199	Non-Irrigated
12.969	14.662	1.693	Rangeland/Native
14.662	15.130	0.467	Non-Irrigated

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
15.130	15.216	0.086	Rangeland/Native
15.216	15.730	0.515	Non-Irrigated
15.730	15.770	0.040	ROW
15.770	16.769	0.999	Non-Irrigated
16.769	16.778	0.008	ROW
16.778	18.781	2.004	Non-Irrigated
18.781	18.799	0.018	ROW
18.799	19.732	0.933	Non-Irrigated
19.732	21.548	1.816	Rangeland/Native
21.548	21.858	0.310	Non-Irrigated
21.858	21.867	0.009	ROW
21.867	21.942	0.075	Rangeland/Native
21.942	21.959	0.017	Riparian
21.959	22.790	0.831	Rangeland/Native
22.790	22.835	0.045	Riparian
22.835	23.316	0.480	Rangeland/Native
23.316	23.328	0.012	Riparian
23.328	23.403	0.076	Rangeland/Native
23.403	23.769	0.365	Non-Irrigated
23.769	23.802	0.034	Riparian
23.802	24.102	0.300	Non-Irrigated
24.102	24.112	0.010	ROW
24.112	24.934	0.823	Non-Irrigated
24.934	24.945	0.010	ROW
24.945	25.122	0.177	Non-Irrigated
25.122	25.179	0.057	Rangeland/Native
25.179	25.188	0.009	ROW
25.188	26.157	0.969	Rangeland/Native
26.157	26.182	0.025	Riparian
26.182	26.288	0.106	Rangeland/Native
26.288	26.724	0.437	Non-Irrigated
26.724	26.837	0.113	Rangeland/Native
26.837	28.266	1.430	Non-Irrigated
28.266	28.290	0.024	ROW
28.290	29.226	0.936	Non-Irrigated
29.226	29.254	0.028	Riparian
29.254	30.172	0.918	Non-Irrigated
30.172	30.219	0.047	Rangeland/Native
30.219	30.268	0.048	Non-Irrigated
30.268	30.278	0.010	Rangeland/Native
30.278	30.295	0.018	ROW
30.295	30.305	0.010	Rangeland/Native
30.305	30.491	0.186	Non-Irrigated
30.491	30.588	0.097	Rangeland/Native

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
30.588	31.014	0.427	Non-Irrigated
31.014	31.077	0.063	Rangeland/Native
31.077	31.958	0.881	Non-Irrigated
31.958	31.992	0.034	Rangeland/Native
31.992	32.008	0.016	Riparian
32.008	32.044	0.037	Rangeland/Native
32.044	32.235	0.191	Non-Irrigated
32.235	32.248	0.013	ROW
32.248	32.476	0.229	Non-Irrigated
32.476	32.525	0.049	Riparian
32.525	34.659	2.134	Non-Irrigated
34.659	34.726	0.066	Rangeland/Native
34.726	35.524	0.799	Non-Irrigated
35.524	35.538	0.014	ROW
35.538	36.177	0.639	Non-Irrigated
36.177	36.414	0.237	Rangeland/Native
36.414	36.425	0.012	Riparian
36.425	36.439	0.013	Rangeland/Native
36.439	36.466	0.027	Riparian
36.466	36.692	0.226	Rangeland/Native
36.692	37.175	0.483	Non-Irrigated
37.175	37.179	0.004	ROW
37.179	37.270	0.091	Non-Irrigated
37.270	37.389	0.119	Rangeland/Native
37.389	37.400	0.011	Riparian
37.400	37.529	0.129	Rangeland/Native
37.529	38.019	0.490	Non-Irrigated
38.019	38.231	0.212	Riparian
38.231	38.390	0.160	Non-Irrigated
38.390	38.432	0.042	Forest
38.432	38.514	0.082	Riparian
38.514	38.563	0.049	Non-Irrigated
38.563	38.908	0.346	Rangeland/Native
38.908	39.097	0.189	Non-Irrigated
39.097	39.447	0.350	Rangeland/Native
39.447	39.733	0.286	Non-Irrigated
39.733	40.166	0.432	Rangeland/Native
40.166	40.198	0.032	Non-Irrigated
40.198	40.219	0.021	Rangeland/Native
40.219	40.321	0.102	Non-Irrigated
40.321	40.391	0.071	Rangeland/Native
40.391	40.634	0.243	Non-Irrigated
40.634	41.136	0.502	Rangeland/Native
41.136	41.264	0.127	Non-Irrigated

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
41.264	41.369	0.106	Rangeland/Native
41.369	41.650	0.280	Non-Irrigated
41.650	41.715	0.066	Rangeland/Native
41.715	41.726	0.011	ROW
41.726	43.160	1.434	Non-Irrigated
43.160	43.165	0.004	ROW
43.165	43.716	0.551	Non-Irrigated
43.716	43.720	0.004	ROW
43.720	45.067	1.348	Non-Irrigated
45.067	45.076	0.009	ROW
45.076	48.161	3.084	Non-Irrigated
48.161	48.176	0.015	ROW
48.176	49.887	1.712	Non-Irrigated
49.887	49.918	0.030	Riparian
49.918	50.665	0.747	Non-Irrigated
50.665	50.680	0.015	ROW
50.680	52.180	1.500	Non-Irrigated
52.180	52.184	0.004	ROW
52.184	54.210	2.026	Non-Irrigated
54.210	54.220	0.009	ROW
54.220	54.712	0.493	Non-Irrigated
54.712	54.716	0.004	ROW
54.716	55.213	0.497	Non-Irrigated
55.213	55.219	0.006	ROW
55.219	55.815	0.596	Non-Irrigated
55.815	55.851	0.036	Rangeland/Native
55.851	57.273	1.422	Non-Irrigated
57.273	57.284	0.011	ROW
57.284	58.282	0.998	Non-Irrigated
58.282	58.287	0.006	ROW
58.287	59.042	0.754	Non-Irrigated
59.042	59.302	0.261	Rangeland/Native
59.302	59.801	0.498	Non-Irrigated
59.801	59.806	0.005	ROW
59.806	60.299	0.493	Non-Irrigated
60.299	60.319	0.020	ROW
60.319	60.451	0.132	Non-Irrigated
60.451	60.509	0.058	Rangeland/Native
60.509	60.518	0.009	Riparian
60.518	60.559	0.041	Rangeland/Native
60.559	60.586	0.027	Riparian
60.586	60.675	0.089	Rangeland/Native
60.675	61.257	0.582	Non-Irrigated
61.257	61.307	0.050	Rangeland/Native

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
61.307	61.333	0.026	Non-Irrigated
61.333	62.333	1.001	Irrigated
62.333	62.345	0.011	ROW
62.345	62.841	0.496	Non-Irrigated
62.841	62.938	0.097	Rangeland/Native
62.938	63.041	0.104	Riparian
63.041	63.098	0.056	Rangeland/Native
63.098	63.288	0.190	Irrigated
63.288	63.442	0.154	Rangeland/Native
63.442	63.883	0.441	Irrigated
63.883	63.893	0.010	Rangeland/Native
63.893	63.916	0.023	ROW
63.916	64.794	0.878	Non-Irrigated
64.794	64.921	0.128	Rangeland/Native
64.921	65.399	0.478	Non-Irrigated
65.399	65.468	0.069	Rangeland/Native
65.468	65.501	0.033	Non-Irrigated
65.501	65.654	0.153	Rangeland/Native
65.654	65.728	0.074	Non-Irrigated
65.728	65.732	0.004	Rangeland/Native
65.732	65.993	0.260	Non-Irrigated
65.993	66.009	0.016	ROW
66.009	66.689	0.680	Non-Irrigated
66.689	66.789	0.099	Rangeland/Native
66.789	66.919	0.130	Non-Irrigated
66.919	67.025	0.106	Rangeland/Native
67.025	67.479	0.454	Non-Irrigated
67.479	67.484	0.005	ROW
67.484	68.240	0.756	Non-Irrigated
68.240	68.246	0.006	ROW
68.246	69.661	1.415	Non-Irrigated
69.661	69.663	0.002	ROW
69.663	69.842	0.179	Non-Irrigated
69.842	69.961	0.119	Rangeland/Native
69.961	70.025	0.063	Non-Irrigated
70.025	70.157	0.132	Rangeland/Native
70.157	70.165	0.008	ROW
70.165	70.451	0.286	Non-Irrigated
70.451	70.488	0.037	Rangeland/Native
70.488	70.492	0.005	Riparian
70.492	71.987	1.495	Rangeland/Native
71.987	72.000	0.012	ROW
72.000	72.553	0.553	Rangeland/Native
72.553	72.639	0.087	ROW

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
72.639	72.799	0.160	Rangeland/Native
72.799	72.819	0.020	ROW
72.819	72.899	0.080	Non-Irrigated
72.899	72.918	0.020	Rangeland/Native
72.918	72.949	0.031	Riparian
72.949	73.411	0.462	Rangeland/Native
73.411	73.489	0.077	Non-Irrigated
73.489	73.523	0.034	Rangeland/Native
73.523	73.534	0.011	ROW
73.534	73.555	0.021	Rangeland/Native
73.555	73.605	0.050	Non-Irrigated
73.605	73.635	0.030	Rangeland/Native
73.635	73.641	0.006	Riparian
73.641	73.704	0.063	Rangeland/Native
73.704	73.713	0.009	ROW
73.713	73.938	0.226	Rangeland/Native
73.938	74.005	0.066	Riparian
74.005	74.528	0.523	Rangeland/Native
74.528	74.542	0.015	ROW
74.542	75.262	0.720	Rangeland/Native
75.262	75.272	0.011	ROW
75.272	75.645	0.373	Rangeland/Native
75.645	75.648	0.003	Riparian
75.648	75.660	0.011	Rangeland/Native
75.660	75.664	0.005	Riparian
75.664	75.691	0.027	Rangeland/Native
75.691	75.695	0.004	Riparian
75.695	75.744	0.049	Rangeland/Native
75.744	75.817	0.073	Non-Irrigated
75.817	75.999	0.182	Rangeland/Native
75.999	76.338	0.340	Non-Irrigated
76.338	76.384	0.046	Rangeland/Native
76.384	76.434	0.051	Riparian
76.434	76.628	0.194	Rangeland/Native
76.628	76.871	0.242	Non-Irrigated
76.871	77.630	0.760	Rangeland/Native
77.630	77.640	0.009	ROW
77.640	77.844	0.204	Rangeland/Native
77.844	77.854	0.010	Agriculture
77.854	78.490	0.636	Rangeland/Native
78.490	78.642	0.153	Non-Irrigated
78.642	78.693	0.051	Rangeland/Native
78.693	78.700	0.007	Riparian
78.700	79.150	0.450	Rangeland/Native

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
79.150	79.391	0.241	Non-Irrigated
79.391	79.485	0.094	Rangeland/Native
79.485	79.785	0.300	Non-Irrigated
79.785	79.957	0.171	Rangeland/Native
79.957	80.171	0.214	Non-Irrigated
80.171	80.496	0.325	Rangeland/Native
80.496	80.506	0.010	Riparian
80.506	81.028	0.522	Rangeland/Native
81.028	81.047	0.020	Riparian
81.047	81.518	0.471	Rangeland/Native
81.518	81.525	0.006	ROW
81.525	81.670	0.146	Rangeland/Native
81.670	81.708	0.038	Riparian
81.708	81.750	0.042	Rangeland/Native
81.750	81.766	0.016	Riparian
81.766	81.807	0.041	Rangeland/Native
81.807	82.029	0.222	ROW
82.029	82.762	0.733	Non-Irrigated
82.762	82.773	0.011	Water
82.773	83.279	0.506	Rangeland/Native
83.279	83.301	0.021	ROW
83.301	83.484	0.184	Rangeland/Native
83.484	83.536	0.051	Non-Irrigated
83.536	83.624	0.088	Rangeland/Native
83.624	83.661	0.037	Non-Irrigated
83.661	83.695	0.035	Rangeland/Native
83.695	83.708	0.012	Non-Irrigated
83.708	83.822	0.114	Rangeland/Native
83.822	84.517	0.695	Non-Irrigated
84.517	84.531	0.013	Rangeland/Native
84.531	85.390	0.859	Non-Irrigated
85.390	85.445	0.056	Rangeland/Native
85.445	86.190	0.745	Non-Irrigated
86.190	86.266	0.076	Rangeland/Native
86.266	86.469	0.203	Non-Irrigated
86.469	86.616	0.147	Rangeland/Native
86.616	86.646	0.030	Non-Irrigated
86.646	86.796	0.150	Rangeland/Native
86.796	86.915	0.119	Non-Irrigated
86.915	87.265	0.350	Rangeland/Native
87.265	87.340	0.075	Non-Irrigated
87.340	87.406	0.065	Rangeland/Native
87.406	87.467	0.061	Non-Irrigated
87.467	87.537	0.069	Rangeland/Native

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
87.537	87.580	0.043	Non-Irrigated
87.580	87.601	0.021	Rangeland/Native
87.601	87.666	0.065	Non-Irrigated
87.666	87.859	0.193	Rangeland/Native
87.859	87.972	0.113	Non-Irrigated
87.972	89.106	1.134	Rangeland/Native
89.106	89.346	0.240	Non-Irrigated
89.346	89.387	0.041	Rangeland/Native
89.387	89.395	0.008	Riparian
89.395	89.800	0.405	Non-Irrigated
89.800	90.190	0.389	Rangeland/Native
90.190	90.203	0.014	Riparian
90.203	90.495	0.292	Rangeland/Native
90.495	90.511	0.017	ROW
90.511	90.564	0.052	Rangeland/Native
90.564	90.570	0.006	Riparian
90.570	90.653	0.083	Rangeland/Native
90.653	90.662	0.009	ROW
90.662	90.791	0.129	Rangeland/Native
90.791	90.802	0.011	Riparian
90.802	90.946	0.144	Rangeland/Native
90.946	91.112	0.166	Non-Irrigated
91.112	91.125	0.013	ROW
91.125	91.217	0.092	Non-Irrigated
91.217	91.226	0.009	Water
91.226	92.003	0.777	Non-Irrigated
92.003	92.025	0.022	Rangeland/Native
92.025	92.338	0.313	Non-Irrigated
92.338	92.409	0.071	Rangeland/Native
92.409	92.690	0.281	Non-Irrigated
92.690	92.695	0.005	ROW
92.695	93.889	1.194	Non-Irrigated
93.889	94.048	0.159	Rangeland/Native
94.048	94.069	0.021	Non-Irrigated
94.069	94.250	0.181	Rangeland/Native
94.250	94.403	0.154	Non-Irrigated
94.403	94.470	0.067	Rangeland/Native
94.470	94.488	0.018	Riparian
94.488	94.563	0.075	Rangeland/Native
94.563	94.819	0.256	Non-Irrigated
94.819	94.827	0.008	ROW
94.827	94.922	0.095	Non-Irrigated
94.922	95.061	0.138	Irrigated
95.061	95.424	0.364	Rangeland/Native

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
95.424	96.504	1.079	Non-Irrigated
96.504	96.510	0.006	ROW
96.510	97.109	0.599	Non-Irrigated
97.109	97.113	0.004	ROW
97.113	97.783	0.670	Non-Irrigated
97.783	97.827	0.044	Rangeland/Native
97.827	98.017	0.190	Non-Irrigated
98.017	98.781	0.764	Rangeland/Native
98.781	98.791	0.010	ROW
98.791	98.962	0.171	Rangeland/Native
98.962	98.972	0.010	ROW
98.972	99.346	0.374	Rangeland/Native
99.346	99.372	0.026	Riparian
99.372	99.406	0.034	Water
99.406	99.422	0.016	Riparian
99.422	99.593	0.170	Rangeland/Native
99.593	99.766	0.173	Non-Irrigated
99.766	99.819	0.054	Rangeland/Native
99.819	99.967	0.148	Non-Irrigated
99.967	100.340	0.372	Rangeland/Native
100.340	100.726	0.386	Non-Irrigated
100.726	100.737	0.011	ROW
100.737	101.293	0.556	Non-Irrigated
101.293	101.298	0.005	ROW
101.298	101.536	0.239	Non-Irrigated
101.536	101.798	0.262	Rangeland/Native
101.798	102.176	0.377	Non-Irrigated
102.176	102.181	0.005	ROW
102.181	102.409	0.228	Non-Irrigated
102.409	102.414	0.006	ROW
102.414	103.516	1.101	Rangeland/Native
103.516	103.531	0.015	ROW
103.531	103.700	0.169	Rangeland/Native
103.700	103.739	0.039	ROW
103.739	104.520	0.781	Rangeland/Native
104.520	104.658	0.139	Non-Irrigated
104.658	105.428	0.770	Rangeland/Native
105.428	105.438	0.010	Riparian
105.438	105.651	0.213	Rangeland/Native
105.651	105.680	0.029	Riparian
105.680	106.625	0.945	Rangeland/Native
106.625	106.638	0.013	Riparian
106.638	107.567	0.929	Rangeland/Native
107.567	107.573	0.006	ROW

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
107.573	108.341	0.768	Rangeland/Native
108.341	108.347	0.006	ROW
108.347	109.233	0.886	Rangeland/Native
109.233	109.239	0.006	ROW
109.239	109.275	0.035	Rangeland/Native
109.275	109.284	0.009	ROW
109.284	109.615	0.331	Non-Irrigated
109.615	109.644	0.029	Agriculture
109.644	109.725	0.081	ROW
109.725	109.910	0.186	Non-Irrigated
109.910	109.914	0.004	ROW
109.914	110.855	0.941	Non-Irrigated
110.855	110.862	0.007	ROW
110.862	112.099	1.237	Non-Irrigated
112.099	112.104	0.005	ROW
112.104	112.219	0.115	Non-Irrigated
112.219	112.269	0.050	Agriculture
112.269	112.424	0.155	Riparian
112.424	112.693	0.269	Non-Irrigated
112.693	112.802	0.109	Riparian
112.802	113.318	0.515	Non-Irrigated
113.318	113.325	0.008	ROW
113.325	114.416	1.091	Non-Irrigated
114.416	114.423	0.007	ROW
114.423	117.955	3.532	Non-Irrigated
117.955	117.964	0.009	ROW
117.964	120.156	2.192	Non-Irrigated
120.156	120.185	0.029	Riparian
120.185	120.472	0.288	Non-Irrigated
120.472	120.477	0.005	ROW
120.477	121.449	0.972	Non-Irrigated
121.449	121.590	0.141	Rangeland/Native
121.590	121.609	0.019	ROW
121.609	122.651	1.042	Rangeland/Native
122.651	123.126	0.476	Non-Irrigated
123.126	123.148	0.022	ROW
123.148	123.782	0.634	Non-Irrigated
123.782	123.833	0.051	Rangeland/Native
123.833	124.392	0.559	Non-Irrigated
124.392	124.648	0.256	Rangeland/Native
124.648	124.658	0.009	ROW
124.658	126.163	1.506	Non-Irrigated
126.163	126.167	0.004	ROW
126.167	127.055	0.888	Non-Irrigated

TABLE H- 14 LAND USES CATEGORIES CROSSED BY ALTERNATIVE 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)[1]**	**Land Use**
127.055	127.072	0.017	Riparian
127.072	127.394	0.321	Non-Irrigated
127.394	127.530	0.136	Riparian
127.530	127.657	0.126	Rangeland/Native
127.657	127.671	0.015	ROW
127.671	128.085	0.414	Non-Irrigated
128.085	128.427	0.342	Rangeland/Native
128.427	128.665	0.238	Non-Irrigated
128.665	128.667	0.002	ROW
128.667	129.908	1.241	Non-Irrigated
129.908	129.922	0.013	ROW
129.922	130.466	0.544	Non-Irrigated
130.466	130.498	0.033	Riparian
130.498	131.414	0.915	Non-Irrigated
131.414	134.329	2.915	Rangeland/Native
134.329	135.265	0.937	Non-Irrigated
135.265	135.283	0.018	ROW
135.283	137.583	2.300	Non-Irrigated
137.583	137.603	0.020	Riparian
137.603	137.619	0.016	Non-Irrigated
137.619	137.655	0.036	Riparian
137.655	137.770	0.116	Non-Irrigated
137.770	137.781	0.011	ROW
137.781	137.896	0.115	Non-Irrigated
137.896	137.917	0.020	Rangeland/Native
137.917	137.977	0.060	Riparian
137.977	138.054	0.077	Rangeland/Native
138.054	138.106	0.052	Riparian
138.106	138.131	0.026	Rangeland/Native
138.131	139.100	0.969	Non-Irrigated
139.100	139.116	0.016	Rangeland/Native
139.116	139.634	0.517	Non-Irrigated
0	139.634	139.634	Total

[1] Subtracting the beginning Distance (Miles)1 from the ending Distance (Miles)1 does not necessarily equal the total Distance (Miles)1 displayed due to rounding.

APPENDIX I:
IMPAIRED RIVER SEGMENTS SUMMARY SHEETS

Montana Department of Environmental Quality — Clean Water Act Information C

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2006 Water Quality Information

Water Information

Waterbody Id	MT41Q005_020	**Water Type**	FRESHWATER LAKE
Name	Benton Lake	**Hydro Unit**	10030102 - Upper Missour
Location	BENTON LAKE T22N R3E	**Basin**	Upper Missouri
Size (Miles/Acres)	5600	**Watershed**	Missouri-Sun-Smith
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-3
County	CASCADE	**Trophic Status and Trend**	Eutrophic
Water Quality Category	5 - One or more uses are impaired and a TMDL is required.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural		✓			
Aquatic Life			✓		
Drinking Water			✓		
Industrial	✓				
Primary Contact Recreation		✓			
Warm Water Fishery			✓		

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
Excess Algal Growth	Agriculture Irrigated Crop Production	Primary Contact Recreation	NO
Nitrogen (Total)	Agriculture Irrigated Crop Production	Aquatic Life Warm Water Fishery	NO
Salinity	Agriculture Irrigated Crop Production	Agricultural Aquatic Life Warm Water Fishery	NO
Selenium	Agriculture Irrigated Crop Production	Aquatic Life Drinking Water Warm Water Fishery	NO
Sulfates	Agriculture Irrigated Crop Production	Aquatic Life Warm Water Fishery	NO

Assessment Information

Assessment Type	Associated Uses	Co
	Agricultural Aquatic Life	

PHYSICAL/CHEMICAL	Drinking Water Industrial Primary Contact Recreation Warm Water Fishery	FAIR

Assessment Method	Associated Uses
NA	NA

Comments

Overall Assessment
NA

Use	Comment
NA	NA

Cause	Comment
NA	NA

Source	Comment
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41L001_040	**Water Type**	RIVER
Name	Cut Bank Creek	**Hydro Unit**	10030202 - Cut Bank
Location	CUT BANK CREEK, Blackfeet Reservation boundary to the mouth (Marias River)	**Basin**	Lower Missouri
Size (Miles/Acres)	23.1	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-2
County	GLACIER	**Trophic Status and Trend**	NA
Water Quality Category	5 - One or more uses are impaired and a TMDL is required.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural	✓				
Aquatic Life			✓		
Cold Water Fishery			✓		
Drinking Water	✓				
Industrial	✓				
Primary Contact Recreation			✓		

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
Low flow alterations	Flow Alterations from Water Diversions	Aquatic Life Cold Water Fishery	NO
Nitrate/Nitrite (Nitrite + Nitrate as N)	Irrigated Crop Production Municipal Point Source Discharges Non-irrigated Crop Production	Aquatic Life Cold Water Fishery Primary Contact Recreation	NO
Temperature, water	Flow Alterations from Water Diversions Irrigated Crop Production	Aquatic Life Cold Water Fishery	NO

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Primary Contact Recreation	FAIR
BIOLOGICAL	Aquatic Life Cold Water Fishery	GOOD
HABITAT	Primary Contact Recreation	FAIR
	Aquatic Life	

HABITAT	Cold Water Fishery	GOOD
PHYSICAL/CHEMICAL	Agricultural Drinking Water Industrial Primary Contact Recreation	FAIR
PHYSICAL/CHEMICAL	Aquatic Life Cold Water Fishery	GOOD

Assessment Method	Associated Uses
Benthic macroinvertebrate surveys	Aquatic Life Cold Water Fishery
Fish surveys	Aquatic Life Cold Water Fishery
Land use information and location of sources	Aquatic Life Cold Water Fishery
Non-fixed station physical/chemical monitoring (conventional pollutant only)	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Aquatic Life Cold Water Fishery Primary Contact Recreation

Comments

Overall Assessment	
NA	
Use	**Comment**
NA	NA
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

Montana Department of Environmental Quality — Clean Water Act Information C

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2006 Water Quality Information

Water Information

Waterbody Id	MT41P002_010	**Water Type**	RIVER
Name	Dry Fork Marias River	**Hydro Unit**	10030203 - Marias
Location	DRY FORK MARIAS RIVER, Big Flat Coulee to the mouth (Marias River)	**Basin**	Lower Missouri
Size (Miles/Acres)	21	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-3
County	PONDERA, TOOLE	**Trophic Status and Trend**	NA
Water Quality Category	1 - All uses assessed and fully supported.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural	✓				
Aquatic Life	✓				
Drinking Water	✓				
Industrial	✓				
Primary Contact Recreation	✓				
Warm Water Fishery	✓				

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
NA	NA	NA	NA

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Aquatic Life Primary Contact Recreation Warm Water Fishery	FAIR
HABITAT	Aquatic Life Primary Contact Recreation Warm Water Fishery	FAIR
PHYSICAL/CHEMICAL	Agricultural Aquatic Life Drinking Water Industrial Primary Contact Recreation Warm Water Fishery	FAIR

Assessment Method	Associated Uses

Benthic macroinvertebrate surveys	Aquatic Life Warm Water Fishery
Fish surveys	Aquatic Life Warm Water Fishery
Non-fixed station physical/chemical monitoring (conventional pollutant only)	Agricultural Aquatic Life Drinking Water Industrial Warm Water Fishery
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Agricultural Aquatic Life Industrial Primary Contact Recreation Warm Water Fishery
Visual observation, may not quantify some parameters; single season; by prof.	Agricultural Aquatic Life Industrial Primary Contact Recreation Warm Water Fishery

Comments

Overall Assessment	
NA	
Use	**Comment**
NA	NA
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

Montana Department of Environmental Quality — Clean Water Act Information C

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2006 Water Quality Information

Water Information

Waterbody Id	MT41P001_010	**Water Type**	RIVER
Name	Marias River	**Hydro Unit**	10030203 - Marias
Location	MARIAS RIVER, Tiber Reservoir to the Two Medicine River-Cut Bank Creek Confluence	**Basin**	Lower Missouri
Size (Miles/Acres)	60	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-2
County	GLACIER, PONDERA, TOOLE	**Trophic Status and Trend**	NA
Water Quality Category	1 - All uses assessed and fully supported.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural	✓				
Aquatic Life	✓				
Cold Water Fishery	✓				
Drinking Water	✓				
Industrial	✓				
Primary Contact Recreation	✓				

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
NA	NA	NA	NA

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Primary Contact Recreation	FAIR
BIOLOGICAL	Aquatic Life Cold Water Fishery	GOOD
HABITAT	Primary Contact Recreation	FAIR
HABITAT	Aquatic Life Cold Water Fishery	GOOD
PHYSICAL/CHEMICAL	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial	FAIR

	Primary Contact Recreation
Assessment Method	**Associated Uses**
Benthic macroinvertebrate surveys	Aquatic Life Cold Water Fishery
Ecological/habitat surveys	Aquatic Life Cold Water Fishery
Fish surveys	Aquatic Life Cold Water Fishery
Land use information and location of sources	Aquatic Life Cold Water Fishery Drinking Water
Non-fixed station physical/chemical monitoring (conventional pollutant only)	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Aquatic Life Cold Water Fishery
Quan. measurements of instream parms, channel morphology, floodplain; 1-2 seasons; by prof	Aquatic Life Cold Water Fishery
Surveys of fish and game biologists/other professionals	Aquatic Life Cold Water Fishery
Visual observation, may not quantify some parameters; single season; by prof.	Aquatic Life Cold Water Fishery Primary Contact Recreation

Comments

Overall Assessment	
NA	
Use	**Comment**
NA	NA
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41Q001_011	**Water Type**	RIVER
Name	Missouri River	**Hydro Unit**	10030102 - Upper Missour
Location	MISSOURI RIVER, Sun River to Rainbow Dam	**Basin**	Upper Missouri
Size (Miles/Acres)	7.6	**Watershed**	Missouri-Sun-Smith
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-2
County	CASCADE	**Trophic Status and Trend**	NA
Water Quality Category	5 - One or more uses are impaired and a TMDL is required.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural	✓				
Aquatic Life			✓		
Cold Water Fishery			✓		
Drinking Water			✓		
Industrial		✓			
Primary Contact Recreation	✓				

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
Chromium (total)	Contaminated Sediments Industrial Point Source Discharge Industrial/Commercial Site Stormwater Discharge (Permittted)	Aquatic Life Cold Water Fishery Drinking Water	NO
Mercury	Contaminated Sediments Industrial Point Source Discharge Industrial/Commercial Site Stormwater Discharge (Permittted)	Aquatic Life Cold Water Fishery	NO
Pentachlorobenzene	Contaminated Sediments Industrial Point Source Discharge Industrial/Commercial Site Stormwater Discharge (Permittted)	Aquatic Life Cold Water Fishery	NO
Physical substrate habitat alterations	Dam Construction (Other than Upstream Flood Control Projects) Industrial/Commercial Site Stormwater Discharge (Permittted) Irrigated Crop Production	Aquatic Life Cold Water Fishery	NO

Sedimentation/Siltation	Contaminated Sediments Industrial/Commercial Site Stormwater Discharge (Permittted)	Aquatic Life Cold Water Fishery	NO
Selenium	Contaminated Sediments Industrial Point Source Discharge Industrial/Commercial Site Stormwater Discharge (Permittted)	Aquatic Life Cold Water Fishery	NO
Solids (Suspended/Bedload)	Contaminated Sediments Industrial Point Source Discharge Industrial/Commercial Site Stormwater Discharge (Permittted)	Aquatic Life Cold Water Fishery Industrial	NO
Turbidity	Contaminated Sediments Dam Construction (Other than Upstream Flood Control Projects) Industrial Point Source Discharge Industrial/Commercial Site Stormwater Discharge (Permittted) Irrigated Crop Production	Aquatic Life Cold Water Fishery Industrial	NO

Assessment Information

Assessment Type	Associated Uses	Co
PHYSICAL/CHEMICAL	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation	FAIR

Assessment Method	Associated Uses
NA	NA

Comments

Overall Assessment	
NA	
Use	**Comment**
NA	NA
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41O002_090	**Water Type**	RIVER
Name	Muddy Creek	**Hydro Unit**	10030205 - Teton
Location	MUDDY CREEK, headwaters to mouth (Teton River)	**Basin**	Lower Missouri
Size (Miles/Acres)	82.7	**Watershed**	Marias
Ecoregion	Canadian Rockies, Northwestern Glaciated Plains	**Use Class**	B-2
County	PONDERA, TETON	**Trophic Status and Trend**	NA
Water Quality Category	3 - Insufficient data to assess any use.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural					
Aquatic Life					
Cold Water Fishery					
Drinking Water					
Industrial					
Primary Contact Recreation					

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
NA	NA	NA	NA

Assessment Information

Assessment Type	Associated Uses	Co
NA	NA	NA

Assessment Method	Associated Uses
NA	NA

Comments

Overall Assessment
NA

Use	Comment
NA	NA

Cause	Comment
NA	NA

Source	Comment
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41L001_010	**Water Type**	RIVER
Name	Old Maids Coulee	**Hydro Unit**	10030202 - Cut Bank
Location	OLD MAIDS COULEE, headwaters to the mouth (Cutbank Creek)	**Basin**	Lower Missouri
Size (Miles/Acres)	16.4	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-1
County	GLACIER	**Trophic Status and Trend**	NA
Water Quality Category	5 - One or more uses are impaired and a TMDL is required. 2B - Available data and/or information indicate that a water quality standard is exceeded due to natural source in the absence of any identified anthropogenic sources.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural			✓		
Aquatic Life			✓		
Cold Water Fishery					✓
Drinking Water	✓				
Industrial			✓		
Primary Contact Recreation			✓		

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
Ammonia (Total)	Crop Production (Crop Land or Dry Land) Municipal Point Source Discharges	Aquatic Life Primary Contact Recreation	NO
Chloride	Crop Production (Crop Land or Dry Land)	Agricultural Aquatic Life Industrial	NO
Nitrate/Nitrite (Nitrite + Nitrate as N)	Crop Production (Crop Land or Dry Land) Municipal Point Source Discharges	Aquatic Life Primary Contact Recreation	NO
Phosphorus (Total)	Crop Production (Crop Land or Dry Land) Municipal Point Source Discharges	Aquatic Life Primary Contact Recreation	NO
Specific Conductance	Crop Production (Crop Land or Dry Land)	Agricultural Aquatic Life Industrial	NO
Total Dissolved Solids	Crop Production (Crop Land or Dry Land)	Agricultural Aquatic Life Industrial	NO

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Primary Contact Recreation	FAIR
BIOLOGICAL	Aquatic Life Cold Water Fishery	GOOD
HABITAT	Primary Contact Recreation	FAIR
HABITAT	Aquatic Life Cold Water Fishery	GOOD
PHYSICAL/CHEMICAL	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation	FAIR

Assessment Method	Associated Uses
Benthic macroinvertebrate surveys	Aquatic Life Cold Water Fishery
Land use information and location of sources	Aquatic Life Cold Water Fishery
Non-fixed station physical/chemical monitoring (conventional pollutant only)	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Aquatic Life Cold Water Fishery Primary Contact Recreation
Visual observation, may not quantify some parameters; single season; by prof.	Aquatic Life Cold Water Fishery

Comments

Overall Assessment	
NA	
Use	**Comment**
Cold Water Fishery	There is insufficient information to evaluate the cold water fishery for Old Maids C does not support the use likely due to natural conditions (Category 2B).
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41O001_010	**Water Type**	RIVER
Name	Teton River	**Hydro Unit**	10030205 - Teton
Location	TETON RIVER, Muddy Creek to the mouth (Marias River)	**Basin**	Lower Missouri
Size (Miles/Acres)	110.6	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-3
County	CHOUTEAU, TETON	**Trophic Status and Trend**	NA
Water Quality Category	4A - All TMDLs needed have been completed.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural	✓				
Aquatic Life		✓			
Drinking Water	✓				
Industrial	✓				
Primary Contact Recreation	✓				
Warm Water Fishery		✓			

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
Low flow alterations	Flow Alterations from Water Diversions	Aquatic Life Warm Water Fishery	NO
Salinity	Agriculture Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production Streambank Modifications/destablization	Aquatic Life Warm Water Fishery	YES
Sedimentation/Siltation	Channelization Highways, Roads, Bridges, Infrasturcture (New Construction) Impacts from Hydrostructure Flow Regulation/modification Streambank Modifications/destablization	Aquatic Life Warm Water Fishery	YES
Sulfates	Agriculture Impacts from Hydrostructure Flow Regulation/modification Irrigated Crop Production Streambank Modifications/destablization	Aquatic Life Warm Water Fishery	YES

Total Dissolved Solids	Agriculture Irrigated Crop Production	Aquatic Life Warm Water Fishery	YES

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Aquatic Life Warm Water Fishery	GOOD
HABITAT	Aquatic Life	GOOD
PHYSICAL/CHEMICAL	Agricultural Aquatic Life Drinking Water Industrial Primary Contact Recreation Warm Water Fishery	GOOD

Assessment Method	Associated Uses
NA	NA

Comments

Overall Assessment
NA

Use	Comment
NA	NA

Cause	Comment
NA	NA

Source	Comment
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41M001_010	**Water Type**	RIVER
Name	Two Medicine River	**Hydro Unit**	10030201 - Two Medicine
Location	TWO MEDICINE RIVER, Birch Creek to the mouth (Marias River)	**Basin**	Lower Missouri
Size (Miles/Acres)	4.3	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-1
County	GLACIER, PONDERA	**Trophic Status and Trend**	NA
Water Quality Category	2 - Waters for which available data and/or information indicate that some, but not all of the ben are supported. 2A - Available data and/or information indicate that some, but not all of the beneficial uses are		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information
Agricultural	✓				
Aquatic Life	✓				
Cold Water Fishery					✓
Drinking Water	✓				
Industrial	✓				
Primary Contact Recreation	✓				

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
NA	NA	NA	NA

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Primary Contact Recreation	FAIR
BIOLOGICAL	Aquatic Life Cold Water Fishery	GOOD
HABITAT	Primary Contact Recreation	FAIR
HABITAT	Aquatic Life Cold Water Fishery	GOOD
PHYSICAL/CHEMICAL	Agricultural Cold Water Fishery Drinking Water Industrial Primary Contact Recreation	FAIR

PHYSICAL/CHEMICAL	Aquatic Life	GOOD

Assessment Method	Associated Uses
Benthic macroinvertebrate surveys	Aquatic Life Cold Water Fishery
Fish surveys	Aquatic Life Cold Water Fishery
Land use information and location of sources	Aquatic Life Cold Water Fishery
Non-fixed station physical/chemical monitoring (conventional pollutant only)	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Aquatic Life Cold Water Fishery Primary Contact Recreation
Visual observation, may not quantify some parameters; single season; by prof.	Aquatic Life Cold Water Fishery

Comments

Overall Assessment	
NA	
Use	**Comment**
Cold Water Fishery	There is insufficient information to evaluate the cold water fishery use for the Two River; it does not support the use likely due to natural conditions (Category 2B).
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

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2006 Water Quality Information

Water Information

Waterbody Id	MT41P004_010	**Water Type**	RIVER
Name	Willow Creek	**Hydro Unit**	10030204 - Willow
Location	WILLOW CREEK, headwaters to mouth at Tiber Reservoir	**Basin**	Lower Missouri
Size (Miles/Acres)	71.9	**Watershed**	Marias
Ecoregion	Northwestern Glaciated Plains	**Use Class**	B-2
County	TOOLE	**Trophic Status and Trend**	NA
Water Quality Category	2 - Waters for which available data and/or information indicate that some, but not all of the ben are supported. 2A - Available data and/or information indicate that some, but not all of the beneficial uses are		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information	
Agricultural						
Aquatic Life	✓					
Drinking Water	✓					
Industrial						
Primary Contact Recreation	✓					
Warm Water Fishery	✓					

Impairment Information

Probable Causes	Probable Sources	Associated Uses	Co
NA	NA	NA	NA

Assessment Information

Assessment Type	Associated Uses	Co
BIOLOGICAL	Warm Water Fishery	GOOD
HABITAT	Aquatic Life	GOOD
PATHOGEN INDICATORS	Drinking Water Primary Contact Recreation	GOOD
PHYSICAL/CHEMICAL	Drinking Water Primary Contact Recreation Warm Water Fishery	GOOD

Assessment Method	Associated Uses
NA	NA

Comments

Overall Assessment	
NA	
Use	**Comment**
NA	NA
Cause	**Comment**
NA	NA
Source	**Comment**
NA	NA

APPENDIX J:
SUMMARY OF SURFACE WATER RESOURCES AND WATER QUALITY

APPENDIX J-1
SUMMARY OF SURFACE WATER IN THE ANALYSIS AREA

Surface Water Body[a]	Number of Crossings[b]			Flow Measured at nearest crossing[c]	Stream Classification[d]	303(d) Status[e]	Water Quality Summary[f]	Percent of Analysis Area Containing SubBasin
	Alt 2	Alt 3	Alt 4					
Upper Missouri-Sun-Smith Basin (HUC 10030102)								
Missouri River	NC	NC	NC	13,100 cfs (2005) Great Falls	B-2	5	Yes	
Black Horse Lake (west finger) 8 acres	1	1	NC	ND	Not classified	NL	No	10.0
Benton Lake	NC	NC	NC	ND	B-3	5	Yes	
Unnamed Lake (22 acres)	NC	1	NC	ND	Not classified	NL	No	
Lake Creek	NC	NC	1	ND	B-3	5	No	
Teton River Basin (HUC 10030205)								
Teton River	1	1	NC	547 cfs (2005) Chouteau	B-3	4A	Yes	18.4
Muddy Creek	NC	NC	NC		B-2	3	Yes	
Marias River Basin (HUC 10030203)								
Unnamed Lake (7 acres)	1	1	NC	ND	Not classified	NL	No	
Unnamed Lake (7.6 acres)	1	1	NC	ND	Not classified	NL	No	
Pondera Coulee	1	1	1	15 cfs (2005) Conrad	B-2	5	No	
Spring Coulee	66.8	62.5	66.8 (Alt 2)	173 cfs (1982) Power	B-2	3	No	54.7
Dry Fork Marias	1	1	1	2,130 cfs (1986) Dupuyer	B-3	1	Yes	
Schultz Coulee	1	NC	1	ND	B-2	NL	No	
Bullhead Creek	1	1	1	ND	B-2	NL	No	
Big Flat Coulee	NC	NC	6	ND	B-2	NL	No	

APPENDIX J-1
SUMMARY OF SURFACE WATER IN THE ANALYSIS AREA

Surface Water Body[a]	Number of Crossings[b]			Flow Measured at nearest crossing[c]	Stream Classification[d]	303(d) Status[e]	Water Quality Summary[f]	Percent of Analysis Area Containing SubBasin
	Alt 2	Alt 3	Alt 4					
Little Flat Coulee	NC	NC	NC	ND	B-2	NL	No	54.7
Hilger Coulee	NC	NC	NC	ND	B-2	NL	No	
Sand Coulee	NC	NC	NC	ND	B-2	NL	No	
Rocky Springs Coulee	NC	NC	NC	ND	B-2	NL	No	
Buckley Coulee	NC	NC	NC	ND	B-2	NL	No	
Marias River[g]	1	1	1	5,160 cfs (2005) Shelby	B-2	2	Yes	
Two Medicine River Basin (HUC 10030201)								0.2
Two Medicine River	NC	NC	NC	ND	B-1	2 & 2A	Yes	
Cut Bank Creek Basin (HUC 10030202)								6.7
Cut Bank Creek	NC	NC	NC	4,060 cfs (2005) Cut Bank	B-2	5	Yes	
Old Maids Coulee	NC	NC	NC	ND	B-1	5 & 2B	Yes	
Spring Creek	NC	NC	NC	ND	B-1	NL	No	
Big Rock Coulee	NC	NC	NC	ND	B-1	NL	No	
Hay Lake (115 acres)	1	NC	1	ND	Not classified	NL	No	
Willow Creek Basin (HUC 10030204)								0.4
None crossed	NC	NC	NC	ND	B-2	2 & 2A	Yes	
Upper Milk River Basin (HUC 10050002)								6.7
Grassy Lake (160 acres)	1	NC	1	ND	Not classified	NL	No	
Red River	1	NC	1	ND	B-1	NL	No	
Red River	1	NC	1	ND	B-1	NL	No	
Red River	1	NC	1	ND	B-1	NL	No	
Unnamed Lake (40 acrea)	NC	1	NC	ND	Not classified	NL	No	
Unnamed Lake (63 acres)	NC	1	NC	ND	Not classified	NL	No	

APPENDIX J-1 SUMMARY OF SURFACE WATER IN THE ANALYSIS AREA								
Surface Water Body[a]	**Number of Crossings[b]**			**Flow Measured at nearest crossing[c]**	**Stream Classification[d]**	**303(d) Status[e]**	**Water Quality Summary[f]**	**Percent of Analysis Area Containing SubBasin**
	Alt 2	**Alt 3**	**Alt 4**					
Total Stream/River Crossings	10	6	17					
Total Pond/Lake Crossings	4	6	2					
Total Crossings	14	12	19					

Notes

Alt = alternative
cfs = cubic feet per second
NA = Not Applicable
NC = No Crossing
ND= No Data
NL= Not Listed on the 303(d) list

[a]This table lists all perennial streams and rivers in the analysis area, as well as, all ponds or lakes greater than 5 acres that would be crossed by one or more alternatives.

[b]Numbers in each column are the number of crossings for each surface water body per alternative.

[c]Flow measured at nearest crossing is from the U.S. Geological data base (USGS 2006). Stream flow measurement shown in this table is typically annual peak flow or near peak flow in cubic feet per second (cfs). Year and location for measurement are noted.

[d] Stream Classification Explanation

- A-CLOSED. Waters classified A-Closed are suitable for drinking, culinary, and food processing purposes after simple disinfection.
- A-1. Waters classified A-1 are suitable for drinking, culinary, and food processing purposes after conventional treatment for removal of naturally present impurities.
- B-1. Waters classified B-1 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- B-2. Waters classified B-2 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- B-3. Waters classified B-3 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.

- C-1. Waters classified C-1 are suitable for bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- C-2. Waters classified C-2 are suitable for bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- C-3. Waters classified C-3 are suitable for bathing, swimming and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of these waters is naturally marginal for drinking, culinary and food processing purposes, agriculture, and industrial water supply.

[e] Categorization of Surface Waters for 303(d) Listing

As of 2004, the EPA has requested that states adopt a five-part scheme for categorizing the assessment status of all waters in each state's water quality monitoring and assessment system. These five categories are used as follows:

- Category 1: Waters for which all applicable beneficial uses have been assessed and all uses are determined to be fully supported.
- Category 2: Waters for which available data and/or information indicate that some, but not all, of the beneficial uses are supported.
    - Subcategory 2A: Available data and/or information indicate that some, but not all, of the beneficial uses are supported.
- Category 3: Waters for which there are insufficient data to assess the use support of any applicable beneficial use, so no use support determinations have been made.
- Category 4: Waters where one or more beneficial uses have been assessed as being impaired, fully supporting but threatened, all TMDLs are completed but impaired beneficial uses have not yet achieved fully supporting status, or impaired and TMDLs are not required:
    - Subcategory 4A: All TMDLs needed to rectify all identified threats or impairments have been completed and approved.
    - Subcategory 4B: Waterbodies are on lands where "other pollution control requirements required by local, state, or federal authority" [see 40 CFR 130.7(b)(1)(iii)] are in place, are expected to address all waterbody-pollutant combinations, and attain all water quality standards in a reasonable period of time. These control requirements act "in lieu of" a TMDL, thus no actual TMDLs are required.
    - Subcategory 4C: Identified threats or impairments result from pollution categories such as dewatering or habitat modification and, thus, the calculation of a TMDL is not required.
- Category 5: Waters where one or more applicable beneficial uses have been assessed as being impaired or threatened and a TMDL is required to address the factors causing the impairment or threat.

[f] All available water quality summaries for surface water in the analysis area are provided in Appendix 3.5.

[g] The Marias River is shown as a Category 1 stream on the Draft 2006 DEQ Water Quality Report.

APPENDIX K:
PRIORITY POLLUTANT MONITORING DATA

APPENDIX K-1 CRITERIA POLLUTANT MONITORING DATA PM_{10}, $PM_{2.5}$, SO_2, and CO									
Site	**Year**	**PM_{10}**		**$PM_{2.5}$**		**SO_2**		**CO**	
		Annual Mean ($\mu g/m^3$)	**24-Hour High ($\mu g/m^3$)**	**Annual Mean ($\mu g/m^3$)**	**24-Hour High ($\mu g/m^3$)**	**Annual Mean (ppm)**	**24-Hour High (ppm)**	**Annual Mean (ppm)**	**8-Hour High (ppm)**
Great Falls, Montana									
ID: 300130001 NW Corner 10th Ave and 2nd Street Intersection	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	4.6
	2002	--	--	--	--	--	--	--	3
	2003	--	--	--	--	--	--	--	2.9
	2004	--	--	--	--	--	--	--	3.2
	2005	--	--	--	--	--	--	--	2.0
ID: 300130002 7 Miles NE of Malmstrom AFB	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	5	13	--	--	--	--	--	--
	2005	9	26	--	--	--	--	--	--
ID: 300130009 Fire Station 9th Street and 1st Ave S	1996	19	69	--	--	--	--	--	--
	1997	20	62	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--

APPENDIX K-1 CRITERIA POLLUTANT MONITORING DATA PM_{10}, $PM_{2.5}$, SO_2, and CO									
Site	**Year**	**PM_{10}**		**$PM_{2.5}$**		**SO_2**		**CO**	
		Annual Mean ($\mu g/m^3$)	**24-Hour High ($\mu g/m^3$)**	**Annual Mean ($\mu g/m^3$)**	**24-Hour High ($\mu g/m^3$)**	**Annual Mean (ppm)**	**24-Hour High (ppm)**	**Annual Mean (ppm)**	**8-Hour High (ppm)**
ID: 300131025 Skyway Conoco 700 10th Ave S	1996	--	--	--	--	--	--	--	8.5
	1997	--	--	--	--	--	--	--	7.4
	1998	--	--	--	--	--	--	--	5.3
	1999	--	--	--	--	--	--	--	3.6
	2000	--	--	--	--	--	--	--	4.6
	2001	--	--	--	--	--	--	--	3.9
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--
ID: 300131026 Great Falls HS 3rd South and 17th East	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	7.5	40	--	--	--	--
	2001	--	--	5.4	33	--	--	--	--
	2002	--	--	5.3	19	--	--	--	--
	2003	--	--	7.5	61	--	--	--	--
	2004	--	--	4.5	21	--	--	--	--
	2005	--	--	5.9	20	--	--	--	--
ID: 300132000 MT Refining @ Wire Mill Road	1996	--	--	--	--	0.004	0.021	--	--
	1997	--	--	--	--	0.003	0.016	--	--
	1998	--	--	--	--	0.003	0.012	--	--
	1999	--	--	--	--	0.003	0.012	--	--
	2000	--	--	--	--	0.003	0.009	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--

APPENDIX K-1
CRITERIA POLLUTANT MONITORING DATA
PM_{10}, $PM_{2.5}$, SO_2, and CO

Site	Year	PM_{10}		$PM_{2.5}$		SO_2		CO	
		Annual Mean ($\mu g/m^3$)	24-Hour High ($\mu g/m^3$)	Annual Mean ($\mu g/m^3$)	24-Hour High ($\mu g/m^3$)	Annual Mean (ppm)	24-Hour High (ppm)	Annual Mean (ppm)	8-Hour High (ppm)
ID: 300132001 1301 27th Ave NE Black Eagle Race Track	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	0.004	0.027	--	--
	2001	--	--	--	--	0.006	0.057	--	--
	2002	--	--	--	--	0.004	0.041	--	--
	2003	--	--	--	--	0.003	0.029	--	--
	2004	--	--	--	--	0.003	0.024	--	--
	2005	--	--	--	--	0.003	0.028	--	--
Browning, Montana									
ID: 300350101 Blackfeet Transit Bldg 34	1996	28	61	--	--	--	--	--	--
	1997	47	135	--	--	--	--	--	--
	1998	36	107	--	--	--	--	--	--
	1999	26	87	--	--	--	--	--	--
	2000	20	130	--	--	--	--	--	--
	2001	22	75	--	--	--	--	--	--
	2002	29	117	--	--	--	--	--	--
	2003	24	190	--	--	--	--	--	--
	2004	15	30	--	--	--	--	--	--
	2005	13	21	--	--	--	--	--	--
ID: 300350102 Blackfeet Industrial Park	1996	11	26	--	--	--	--	--	--
	1997	8	18	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--

Notes:

PM_{10} Particulate Matter < 10 Microns
$PM_{2.5}$ Particulate Matter < 2.5 Microns
$\mu g/m^3$ micrograms per cubic meter
ppm parts per million
Source: EPA 2006a

APPENDIX L:
PHOTOGRAPHIC SIMULATIONS

APPENDIX L

Photographic Simulations

Technical information on the generation of photographic simulations is provided here. Computer Aided Design (CAD), Geographic Information System (GIS), and 3-dimensional (3-D) modeling and design software, Global Positioning Systems (GPS) equipment, a Digital Single Lens Reflex (dSLR) camera, and direct conversations with individuals responsible for transmission line pole design were used to prepare the photograph simulations. Photographs were taken in the field at the defined viewpoint locations and used as backgrounds in the computer generated images. Several 3-D models were constructed of the topography and transmission line poles. Pole placement was performed using GIS software. The computer camera placed the poles in the 3-D model at the appropriate location and the images were generated.

On-site GPS data were obtained using the Pharos GPS Pocket Navigator package for a hand-held Dell Axim 51 PDA. Data recorded included date, time of day, latitude, longitude, elevation, and heading. Heading was verified with a hand-held compass. On-site photographs were acquired using a Canon 350D dSLR (1.6 crop factor) and a Canon 18-55 mm zoom lens. Camera information recorded and verified from photograph EXIF information included: film speed, focal length, aperture, and shutter speed. Photographs were saved as both unprocessed data from the image sensor and in a compressed format.

Montana Digital Elevation Model (DEM) data were obtained from the National Elevation Dataset (NED) as of April 2002 for each of the viewpoints. The data used included 30-meter X-Y resolution and one foot resolution in the Z-plane. Horizontal datum is North American Datum of 1927 (NAD27) with a transverse mercator projection, and National Geodetic Vertical Datum (NGVD) 1929 vertical datum.

The proposed transmission line route was presented in the MFSA application (MATL 2006b). The transmission line map datum was converted to NAD27, so that the line could be exported and then re-imported into the 3-D modeling software and aligned with the NAD27 based DEMs. Transmission line and proposed pole specifications and details were obtained from SNC-Lavalin ATP Inc. (2006). Scaled 3-D models were constructed for each of the proposed power pole types and placed into the 3-D model along the proposed transmission line alignment using specified or recommended span distances between poles. Typical conductor and ground cable sag specifications were used unless otherwise specified by SNC-Lavalin.

For each simulation, the photograph taken in the field was imported into the 3-D modeling software package and loaded as a background environment within which the view of the 3-D model is generated. To generate the correct view relative to the actual photograph, a software camera was placed at a location identical to where the photograph was taken relating the field location to the DEM location. Using the JEEEP.com coordinate translation applet, GPS recorded camera locations were converted to Universal Transverse Projection (UTM) northing and easting locations to facilitate placement of the software camera.

APPENDIX M:
INTERCONNECTION INFORMATION AND AGREEMENT

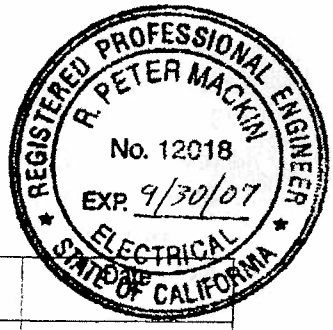
MONTANA ALBERTA TIE LTD



MONTANA-ALBERTA TIE LTD.
PROJECT REVIEW GROUP

PHASE 2 STUDY REPORT

PROJECT REVIEW GROUP ACCEPTED
JULY 24, 2007



	Name	Signature	
Prepared	Peter Mackin, P.E. Utility Systems Efficiencies, Inc.	R. Peter Mackin	07/24/07
Approved	Mark Abraham, P.Eng. Montana Alberta Tie Ltd.		July 24, 2007

I. EXECUTIVE SUMMARY

Project Overview

Montana Alberta Tie, Ltd. (MATL), a wholly owned subsidiary of Tonbridge Power Inc., is proposing to build a 240/230 kV merchant transmission line from the Lethbridge area in southern Alberta to Great Falls in west-central Montana. This project is Alberta's first direct interconnection to the United States and Montana's first direct interconnection with Alberta. The Project will provide import/export opportunities for power markets in Montana and Alberta and enable wind development opportunities in southern Alberta and northern Montana since the transmission route traverses a region of substantial wind development potential.

The MATL project is a 240/230kV, 330 MVA transmission line designed for continuous bi-directional power transfers of over 300 MW. The project consists of a new substation, named MATL 120S, located approximately 15 km north of the City of Lethbridge, Alberta that ties into the existing 240 kV Alberta Interconnected Electric System (AIES) system. A phase shifting transformer will be installed in the MATL 120S substation to control flows both north and south and to step the voltage down from the Alberta nominal system voltage of 240 kV to transmission line voltage of 230 kV. A mid-point substation named Marias will be built approximately 10 km south of the town of Cut Bank, Montana. The Marias Substation will contain shunt and series capacitance for voltage support and the substation will be a connection point for proposed wind generation projects in the area. At the south end, the MATL transmission line will terminate at the existing Great Falls, Montana, 230 kV substation. The Great Falls Substation is owned and operated by NorthWestern Energy Inc. The transmission line is approximately 346 km long, uses single Falcon 1590 kcmil conductor, and will be built of a combination of monopole and H-frame structures.

Phase 2 Path Rating Process

On August 19, 2005, MATL initiated the WECC Regional Planning Process for the MATL project through an invitation letter to WECC Planning Coordination Committee (PCC) and Technical Studies Subcommittee (TSS) to form a Regional Planning Review group. A project review group was formed and on December 7, 2005, MATL submitted a Regional Planning Project Report to the PCC. No comments were received during the 30 day comment period. Accordingly, on January 23, 2007, the PCC notified MATL that the Regional Planning Project Review had been completed.

On September 20, 2005, MATL initiated the WECC Path Rating Process for the MATL Project through the submittal of a Comprehensive Progress Report to the PCC and TSS as well as an invitation to form a Path Rating Project Review Group (PRG). During the 60-day comment period, MATL received requests from WECC members to participate in the PRG. On February 2, 2006, the TSS confirmed the MATL Project had achieved Phase 2 status.

As a result of a combination of regulatory, commercial and technical factors, MATL made scope changes to the project and notified the PCC and the TSS of these changes on August 30, 2006. The most notable changes were the addition of series compensation to the transmission line at the Marias Substation in order to increase the emergency rating of the MATL project

and the inclusion of a 120MW of wind generation connection to the Marias Substation. Because of these major changes, MATL re-opened the PRG to new WECC members. Two new members subsequently joined.

Study Plan

The MATL PRG developed a study plan to analyze the impact of the MATL system on neighboring systems. The Phase 2 study is based on a planned in service date of the MATL project of 2008. The MATL Rating Study Scope included the MATL proposed path rating flows defined as -300 MW power transfers into the connection point in Alberta (MATL 120S) from Montana (north flows) and +325 MW power transfers (metered at MATL 120S) from Alberta toward NorthWestern Energy system in Montana (south flows) under the WECC 2007 Heavy Summer and 2007 Light Spring base cases. These flows are effectively 300 MW delivered at the interface ends of the line as MATL line losses at rated flow are approximately 25 MW. Sensitivities include Great Falls, Montana generation, a wind generation connection at the Marias Substation and wind generation in southern Alberta. The wind generation sensitivity at Marias was subsequently removed from the study scope by MATL (with the concurrence of the MATL PRG) in order to expedite the submittal of the Phase 2 Project Rating Report. The TSS was notified of the removal of the Marias wind generation sensitivity on June 11, 2007.

The MATL PRG has performed and reviewed Phase 2 Rating studies according to the guidelines in the WECC "Procedures for Regional Planning Project Review and Rating Transmission Facilities". The purpose of these studies is to demonstrate that the MATL project conforms, or will be able to conform to, all applicable Reliability Criteria. In addition, these studies:

- identify the planned non-simultaneous transfer capability and the planned simultaneous path transfer capability limits for the proposed project configuration,
- address the mitigation of simultaneous transfer capability issues relative to the existing system, and
- resolve comments from BPA, NWE, and BCTC on the MATL Comprehensive Progress Report.

No changes to the current existing WECC path ratings are contemplated or implied in this report.

Conclusion

In conclusion, the non-simultaneous study demonstrates the MATL project meets NERC/WECC Planning and reliability standards for the proposed path rating of 300 MW northbound and 325 MW southbound, as defined at the MATL 120S metering point, under certain conditions stipulated in this Report.

The conditions identified that require remedial action schemes (RAS) are:

1. Loss of Langdon - Cranbrook,

2. Loss of Cranbrook - Selkirk,
3. Loss of Selkirk - Ashton Creek and Selkirk - Vaseux Lake,
4. Loss of both Ingledow - Custer lines (when BC would separate from the US), and
5. Loss of both Custer - Monroe lines (when BC would separate from the US).

These five contingencies will require a RAS to trip MATL to prevent voltage collapse or transient instability from occurring. The RAS is intended to be armed at all times that the MATL project is in service. If the RAS is out of service for any reason, it is expected that the MATL line will need to be taken out of service to preserve system reliability. Future operating studies may look at possibly defining a lower boundary for RAS arming. If system flows are below the boundary levels defined in the studies, then the RAS may not need to be armed.

In addition to the above RAS, other conditions identified that require mitigation are:

1. Loss of the MATL tie when Nelway - Boundary flow is at or near its limits and the MATL flow is in the same direction as the Nelway - Boundary flow will require either a RAS to trip Nelway - Boundary or an operating procedure to issue a tap changer adjustment order for the Nelway phase shifting transformer.

2. Loss of large amounts of generation in Montana due to operation of the Colstrip ATR can cause a large increase in flows on the MATL project. In order to mitigate these overloads, the MATL phase shifting transformer will need to be adjusted or the MATL line will need to be tripped.

This study also identified simultaneous transfer capability of MATL versus Path 1, Path 3 and Path 8. Nomograms were developed for these simultaneous relationships for the cases studied. In all nomograms, the metering point on MATL is assumed to be the MATL 120S Substation. For the cases studied, MATL and either Path 1 or Path 3 cannot both simultaneously achieve rated transfers due to constraints outside the MATL line and Path 1 or Path 3. Under these operating conditions, simultaneous operating limits (nomograms) or other mitigation methods are required to meet NERC/WECC Planning Standards. Studies for Path 8 indicate there is potential for interaction between MATL and Path 8 transfers. Further operational studies are required to confirm impacts, if any, and corresponding mitigation. These simultaneous conditions are:

1. High simultaneous transfers on Path 1 and MATL,

2. High simultaneous transfers on Path 3 and MATL,

3. High simultaneous transfers on Path 8 and MATL (not confirmed)

Further details regarding the magnitude of the required curtailments and the contingencies that create the need for these curtailments are provided in the Results sections of this report. This report identified limits of simultaneous interactions for specific system conditions defined for MATL path rating purposes. Further studies for a variety of system conditions are needed to establish actual operating limits.

A thorough investigation of flowgates in the Great Falls area has uncovered the existence of five potential flowgates that can limit export from Great Falls in the north-to-south direction.

The first four of these flowgates have limits that allow anywhere from 245 MW to 675 MW of additional power to be injected into the Great Falls 230 kV bus under heavy summer conditions and anywhere from 510 MW to 640 MW of additional power to be injected into the Great Falls 230 kV bus under light spring conditions[1].

The last flowgate (the Great Falls - Landers Fork - Ovando 230 kV flowgate) is constrained by voltage deviations on NWE's 100 kV system in the vicinity of Townsend. Because this constraint is based on voltage deviations, it is difficult to quantify this limit as a function of MW flows through a flowgate. While studies have shown that the other four flowgate limits are usually reached first, there is a possibility that the Great Falls - Landers Fork - Ovando 230 kV flowgate could be limiting. For this reason, either system reinforcements or a RAS may be needed to mitigate the impacts of the Great Falls - Landers Fork - Ovando 230 kV line outage.

The conclusions are based on a comparative analysis between pre-project base case conditions and the base case with the proposed MATL project under the same conditions. This study did not investigate conditions that could not meet WECC/NERC reliability in the pre-project case. In particular, Path 1 flows used in this study were well below the 1000 MW east to west and 1200 MW west to east path rating limit because of limitations in the AIES system.

Mitigation Plan

Also required as part of the Phase 2 process is the mitigation plan. MATL's mitigation plan is to:

- develop a mitigation implementation and responsibility plan
- design and implement protection, control and remedial action schemes to meet the mitigation objectives identified in this report or that may be identified through the operating study process,
- comply with WECC Procedures for Project Rating Review subject to the requirements or orders from the connecting Transmission Service Providers or Path Operators.
- operate within transfer capabilities identified in this report or that may be identified through operational studies,
- design and operate to NERC/WECC Planning Standards,
- develop operating procedures or operate to procedures of respective connecting electrical system operators to maintain WECC reliability, and
- negotiate agreements to resolve conflicts as a means to formulate a mitigation strategy with impacted parties where applicable.

For impacts to Path 3 flows as identified in the MATL vs. Path 3 nomogram, MATL's mitigation plan is to:

[1] Note that these additional power injections are subject to the conditions defined in the base cases and were used for the PRG's analysis of the MATL project. Actual allowable power transfer limits will be determined by the area electrical system operator(s).

A. Develop, fund and implement a RAS mutually acceptable to BCTC and/or AESO as appropriate which will reduce or eliminate the MATL impact

B. If the RAS cannot be implemented prior to MATL being energized, MATL, BCTC and other affected transmission operators will develop operating procedures to keep the amount of power that Path 3 can transfer protected from being diminished due to MATL flows. This operating procedure may include curtailing MATL.

C. If a RAS cannot be implemented to fully protect Path 3 transfers from being diminished due to MATL flows, operating procedures to protect Path 3 transfers will be in place along with the RAS.

The details of the mitigation plan will be developed in coordination with impacted electrical system operators and other impacted parties. MATL proposes to execute this plan in Phase 3.

Next Steps

Completion of Phase 2 (acceptance of this report by WECC) is one step towards the construction and ultimate operation of the proposed Montana – Alberta 240/230 kV merchant transmission line. More operational study work including development of operational procedures and tools as well as the detailed design and implementation of remedial action schemes (RAS) is required to fully define definitely the envelope of operation for this project. The time to study, design and implement the special protection schemes in addition to the necessary review by the WECC Remedial Action Scheme Reliability Subcommittee (RASRS) could be upwards of one year or more, which may restrict the operational capability of the proposed merchant transmission line until final design, review and implementation of the remedial action schemes are complete.

MONTANA ALBERTA TIE LTD

April 2, 2007

Tom Ring
Senior Environmental Specialist
Facility Siting Program
Montana Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
U.S.A.

COPY

RECEIVED
APR 06 2007
Dept. Environmental Quality
Env. Management Bureau

Dear Mr. Ring:

Subject: Appendix M of the Draft EIS for Public Comment re: MATL Project

Attached is the NorthWestern Energy (NWE) system impact study that is required for Appendix M of the Environmental Impact Statement (EIS) prepared by the DEQ. MATL requests that the DEQ also include the attached interim progress report on the Western Electricity Coordinating Council (WECC) in Appendix M of the EIS.

MATL would like to address the purpose of the NWE Impact Study (Impact Study) and the WECC Path Rating Study (Path Rating Study). The purpose of both the Impact Study and Path Rating Study is to assess impact of the MATL project on the reliability of the electric transmission grid. The Impact Study addresses the impact on the reliability of the NorthWestern transmission grid, whereas the Path Rating Study addresses the impact on the reliability of the greater western interconnected transmission grid, including NorthWestern Energy's grid and that controlled by the Alberta Electric System Operator.

The key steps conducted for both Impact and Path Rating Studies are:

1. Determine which operating conditions (Base Cases) will be studied to assess the reliability of the transmission grid;
2. Determine how the Base Cases are affected under different operating scenarios (Contingencies);
3. Compare the study results to reliability criteria, set by WECC to assess whether the study results meet reliability criteria or not;
4. In the event that a Base Case does not meet reliability criteria under certain Contingencies, determine an appropriate mitigation plan to ensure such Base Cases do meet the applicable reliability criteria. Typical mitigation plans include the setting operational limits, or implementing remediation control schemes.

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NWE System Impact Study

Currently, MATL and NWE are working together on the facility design and the Interconnection Agreement for the 300MW bi-directional tie at the Great Falls 230 kV Substation. MATL would now like to address the conditions identified in the NWE Impact Study that may limit the transfer capability under certain conditions:

1. The two existing 100 MVA 230/100 kV autotransformers are limiting the power transfer out of the Great Falls 230 kV substation to zero MW.

   MATL's interconnect agreement with NorthWestern stipulates that MATL will pay the cost to replace the two existing 100 MVA autotransformers with two 200 MVA autotransformers, thereby mitigating autotransformer overloads identified in the contingency analysis. As stated in the NWE Impact Study, the existing autotransformers would also need to be replaced to interconnect other projects that are senior to the MATL project in NorthWestern's queue.

2. NorthWestern has requested that MATL consider the operation and voltage set points of the switched shunt capacitors at MATL's Marias substation to prevent high voltage situations.

   MATL will ensure that it's facilities are designed to be operated in accordance with WECC requirements. NorthWestern, in its role as the control area operator of the MATL line in Montana, will have the authority to determine the appropriate set points for the switched shunt capacitors at the Marias substation.

3. Under certain conditions, the south bound flows over the MATL line are constrained in the year 2010LA (light autumn) and year 2012HS (heavy summer) cases to 170-190MW range by the 79 degree angle limit of the phase shifting transformer (PST).

MATL does not consider the PST angle limit as an impediment to commercial operations of the line because the system conditions that create the south bound phase angle limit are typically when south bound flows would be un-economical in any event. The conditions where south bound phase limit occur is when there is heavy power flow east from British Columbia (BC) into Alberta through path #1 and heavy power flow west from Montana into the Pacific North West through Path #8. Short term opportunity power flow would be scheduled in these directions when the market price of electricity was higher in Alberta and the Pacific North West than in BC or Montana and under those same pricing conditions the market would normally want to move power northbound over the MATL line as opposed to southbound.

WECC Path Rating Studies

The enclosed letter from Mr. Peter Mackin, Vice President, Reliability Services & Principal Power System Analyst, Utilities System Efficiencies, confirms that the conclusions of his report dated 16 January 2007 are still valid, that is to say that a path rating of 300 MW, both north to south and south to north, is anticipated at the conclusion of the WECC Path Rating process.

Respectfully,

Robert L. Williams

Bob Williams
Vice President, Regulatory
Enclosures (3)

NorthWestern Energy

RECEIVED
APR 06 2007
Dept. Environmental Quality
Env. Management Bureau

Montana Alberta Tie Line (MATL)

Third Revision

System Impact Study

Stand-Alone & Co-Existing

COPY

September 26, 2006

Electric Transmission Planning

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Executive Summary

NorthWestern Energy (NWE) has completed the System Impact Study (SIS) for the Montana Alberta Tie Line (MATL) Project on December 22, 2005. As per the request of MATL to reword the conclusions in the original SIS report, NWE made required wording changes and submitted a revised SIS on February 9, 2006. Upon completion of the SIS, the Facilities Study is to commence. At the beginning of the Facilities Study, it is NWE's practice to confirm the SIS results and mitigation requirements. However, MATL made changes to the line design, interconnection point in Alberta and increased the length of the line. As a result of these modifications, another SIS is necessary to identify the problems and mitigation before the Facilities Study commences. Also, the new Great Falls – Ovando 230 kV line included in the original SIS as a fix for a senior queue project is not needed anymore and hence it is removed in the base case for this study. The study results and the necessary mitigation changed with all these modifications.

This System Impact Study examines the physical interconnection to the Great Falls 230 kV Switchyard and does not constitute a request for transmission service. These studies examine the physics of the electrical system and do not imply that the users of the transmission line will receive any transmission required to deliver the output to load beyond the Great Falls 230 kV Switchyard. The users of the MATL transmission line must follow the procedures described in the transmission tariff available on NWE's OASIS site to request and/or reserve Transmission Service or a Generation Interconnection.

The goal of the System Impact Study is to identify improvements or changes needed in NWE's electric transmission system to reliably *interconnect* your project to NWE's transmission system only. This study does not make any specific presumptions or recommendations regarding NWE's system improvements that will be required to move power away from NWE's 230 kV Switchyard. NWE's transmission system mitigation requirements will be fully defined for the specific Transmission Service Requests to move power away from (or to) NWE's Great Falls 230 kV Switchyard once NWE has received the requests. NWE has not received a Transmission Service Request (TSR) or a Generation Interconnect Application (GIA) that will be associated with (or connected to) the MATL line.

This study was designed to answer two questions:

(I) What is the available unused capability of the Great Falls 230 kV Switchyard with the MATL line interconnected?

Stand-Alone and Co-Existing:

- The existing unused capability of the Great Falls 230 kV Switchyard without any system or network upgrades is 0 MW.

(II) What transmission system upgrades are necessary to allow your line to be interconnected.

Stand-Alone and Co-Existing:

- The overload of the two Great Falls 230/100 kV autotransformers must be mitigated. The mitigation required must be coordinated with senior queue N-1 mitigation requirements. With the autotransformer upgrades, the MATL line will be able to connect its 230 kV line to the GF 230 kV Switchyard without further mitigation in the switchyard based on the information provided and analyzed in this study.

- MATL needs to consider the voltage set points of the switched shunts to prevent high voltages during all conditions (N-0, N-1 and N-2). Also, the high voltages at the proposed Marias and MATL 230 kV buses are present for other contingency conditions.

The above mitigation will be required before the MATL project can be connected to NWE's transmission system. The study results may change if there are changes to MATL's queue position or to the line design and interconnection specifications provided by you to NWE. Any variation in the line or interconnect specifications must be reported to NWE, so a thorough review and/or study can be conducted by NWE. Such review and/or study may yield results different from this analysis, and different mitigation requirements may be required.

The following tables are a summary of the high-level non-binding cost estimates. The cost estimates will be finalized in the Facilities Study. (All estimates are denominated in 2006 US dollars).

Table 1. Cost Estimates for MATL to interconnect

Interconnection Cost Estimate	$M *Cost*
230 kV Switchyard Upgrades	5.605*
Transmission Provider Interconnection Facilities	0.145
Total Cost Estimate	5.750

This study examined the physical performance of the electrical transmission system and does not imply: 1) that transmission service will be received, or 2) entitlement to transmission service that is required to deliver the generation output to load. Conducting a Transmission Service Request Study will be required and may identify additional electric transmission system improvements required on NWE's or other electric transmission provider's transmission systems. It must be noted that upgrades to transmission paths that interconnect NWE with other transmission systems may be identified and required as a result of the Transmission Service Request Study. This may make it necessary to enter into a WECC Regional Planning Process and/or a Three Phase Rating Process. It is possible that fulfilling these WECC requirements may take considerable time.

Definitions

Stand-Alone Study

A stand-alone (SA) study is designed to identify changes in the reliability of the local and regional electric transmission system by comparing the performance of the system with and without the addition of the MATL facility. The Stand-Alone Study and associated results represent the transmission system with existing resources and without senior queue generation projects and associated system mitigation that will come online at a later date than the MATL. The mitigation identified for the Stand-Alone Study must be implemented before the MATL facility can interconnect.

Co-Existing Study

A co-existing (CE) study identifies and evaluates the MATL facility's impact to the transmission system when all relevant generators are also interconnected to NWE's system. The relevant generators include all existing generators and potential new generators that are senior to MATL's queue position. MATL must implement mitigation for problems caused by its interconnection as identified in the Co-Existing System Impact Study. Implementation of some of the MATL mitigation requirements may be appropriately timed, and be completed before the commercial operation of senior queued generation that has a commercial operation date later than MATL.

* This cost might be less, as the mitigation listed for the autotransformers (approximately $3.6M) is to be coordinated with the N-1 senior queue mitigation.

Project Description

The following data is used for the Third Revision SIS of the MATL project. The impedance data used in this project are as shown in the Table 1 below.

Table 2. Line Impedance data

	FROM	TO	Length (Mi)	R (pu)	X (pu)	B (pu)
PST Data	N LETH 240 kV	MATL 240 kV	NA	0	0.04697	0
Transformer Data	MATL 240 kV	MATL 230 kV	NA	0	0.01904	0
Line Data	MATL 230 kV	MATL SC1 230 kV	126.56	0.01529	0.17927	0.38589
Series Cap Data	MATL SC1 230 kV	Marias 230 kV	NA	0	-0.11652	0
Series Cap Data	Marias 230 kV	MATL SC2 230 kV	NA	0	-0.06536	0
Line Data	MATL SC2 230 kV	GT Falls 230 kV	91.82	0.01109	0.13072	0.27736

The Phase shifting transformer rating is 330 MVA and the Impedance is 15% on 330 MVA base, with an angle of ±79 degrees. There are two switched shunts, rated 50 MVAr of 2 blocks and 40 MVAr of 4 blocks at the new MATL 240kV and 230 kV substations respectively.

Study Parameters

Senior Queue Network Generators

In modeling the appropriate parameters for the Co-Existing System Impact Study it was necessary to include the following relevant, potential new network generators that are senior to your project's queue position.

1. 188 MW at Judith gap (existing plant)
2. 109 MW at Hardin (existing plant)
3. 12 MW at Thompson Falls (existing plant)
4. 280 MW at Great Falls[1]
5. 48 MW at South Butte (existing plant)
6. 396 MW at Reed Point (in study process)
7. 268 MW at Great Falls (in study process)

[1] NWE has recently received a cancellation request from this project, but the request is not approved until the FERC accepts the request. Removing this resource will not eliminate the overload on the 230/100 kV autotransformers discussed within this report.

8. 500 MW at Colstrip (in study process)

The dispatch of existing network generators and these new network generators were varied as needed to stress the transmission system and meet network load. Both the 2010 Light Autumn (2010LA) and 2012 Heavy Summer (2012HS) cases are studied with Great Falls generation at minimum as well as maximum as they reflect different scenarios. For the Stand-Alone Study, generation and fixes of 268 MW at Great Falls and 500 MW at Colstrip are removed from the base case.

Assumptions

The following network system upgrades required for the senior queued projects were included in the system models for the 2010LA and the 2012HS cases.

1. An Overload Mitigation Scheme (OMS) for the Judith Gap Wind Energy facility to mitigate for the Broadview - Judith Gap South 230 kV line outage.

2. A Remedial Action Scheme (RAS) for the Rocky Mountain Power Plant to mitigate for stability issues for the loss of both Broadview - Garrison 500 kV lines.

3. Replace the existing Great Falls 230/100 kV autotransformers to fix the senior queue project problems.

4. A RAS in service for the 268 MW generator at Great Falls to trip for the Facility - Great Falls 230 kV N-2 contingency.

5. Reconductor the Judith Gap to Judith Gap Tap and Judith Gap Tap to Harlowton 100 kV lines.

6. Replace the existing Judith Gap 100 MVA, 230/100 kV autotransformer with 200 MVA, 230/100 kV transformer.

7. An additional 500 MVA, 500/230 kV autotransformer at Colstrip.

8. An OMS for the loss of one of the three 500/230 kV autotransformers at Colstrip.

9. Increase of the ampere rating of the series capacitors and all related equipment to 3000 Amps in the Colstrip - Broadview, Broadview - Garrison, Garrison - Taft, Taft - Bell, and Taft - Dworshak 500 kV lines.

10. A large (up to 450 MVAr) fast responding switched capacitor bank at the Broadview 230 kV bus. This device is necessary to support the steady-state voltage in the Broadview local area during the Colstrip - Broadview 500 kV single line outage.

11. Increase of the percent compensation of the series capacitors and all related equipment to 70% in the Colstrip - Broadview, Broadview - Garrison, Garrison - Taft, Taft - Bell, and Taft - Dworshak 500 kV lines.

12. A dynamic VAr device (up to 100 MVAr) located at the Garrison 230 kV bus. This device is necessary for voltage support during 500 kV N-1 stability contingencies.

13. A dynamic VAr device (up to 50 MVAr) located at the Broadview 230 kV bus. This device is necessary for voltage support during 500 kV N-1 stability contingencies.

14. A RAS for the new Colstrip facility to mitigate for all 500 kV N-2 contingencies.

Steady-State Power Flow Analysis

The Steady-State Power Flow Analysis examines steady-state system normal operating conditions with no lines out of service (i.e., N-0 conditions) and with one or more lines out of service (i.e., N-1 and N-2 conditions).

Stand-Alone Study Findings

Table 3. 2012HS Thermal Overloads, Great Falls Generation Maximum

Outage	Monitored element	Overload %	Prebc %
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 1	110.5	None
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 2	106.4	None
GT Falls 230/100 kV transformer ckt 2	GT Falls 230/100 kV transformer ckt 1	118.6	None
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	104.1	None
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	101.5	None

Table 4. 2012HS Thermal Overloads, Great Falls Generation Minimum

Outage	Monitored element	Overload %	Prebc %
N-0 conditions	GT Falls 230/100 kV transformer ckt 1	114.4	None
N-0 conditions	GT Falls 230/100 kV transformer ckt 2	110.2	None
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 1	144.5	117.4
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 2	139.2	113.1
GT Falls 230/100 kV transformer ckt 2	GT Falls 230/100 kV transformer ckt 1	184.6	152.4
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	117.2	None
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	112.8	None
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	115.9	None
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	111.6	None

- When the MATL flows were northbound, a flow of 301.3 MW was achieved at a phase shifting angle of +43.8 degrees in the 2010LA case and a flow of 300.7 was achieved at an angle of +44.9 degrees in the 2012HS case.

- Great Falls 230/100 kV autotransformers are overloaded with the addition of MATL facility under N-0 and N-1 conditions (Tables 5 and 6). These overloads must be mitigated by MATL.

Stand-Alone Study Mitigation

Completing the following can mitigate the above stand-alone problems:

- MATL needs to consider the voltage set points of the switched shunts to prevent high voltages during all conditions (N-0, N-1 and N-2). Also, the high voltages at the proposed Marias and MATL 230 kV buses are present for all the other contingency conditions. Please see the limit checking reports in Attachment B for more details.

- The mitigation required for the overload of the two Great Falls 230/100 kV autotransformers must be completed by MATL. This mitigation will be coordinated with senior queue N-1 mitigation requirements.

Because the MATL project is scheduled to be in-service before the senior queue projects, the above mitigation requirements must be completed by MATL before the project goes commercial.

Co-Existing Study Findings

Co-Existing Simulated Events

The outages studied for the Co-Existing Study are as follows.

Great Falls – Ovando 230 kV line

Great Falls 230/100 kV autotransformer ckt 1

Great Falls – Great Falls 268 generator 230 kV line ckt 1

Great Falls – Judith Gap 230 kV line

Broadview – Judith Gap South 230 kV line (Judith Gap RAS is implemented for this outage)

The Co-Existing Study found the following system problems. The addition of this project and all senior queued Generation Interconnection projects will require system mitigation.

Table 5. 2010LA Thermal Overloads, Great Falls Generation Minimum

Outage	Monitored element	Overload %	Prebc %
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 1	144.5	125.3
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 2	139.1	120.6
GT Falls 230/100 kV transformer ckt 2	GT Falls 230/100 kV transformer ckt 1	151.3	112.5
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer	103.7	None
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	121.3	None
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	116.8	None

Table 6. 2010LA Thermal Overloads, Great Falls Generation Maximum

Outage	Monitored element	Overload %	Prebc %
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 1	113.5	102.5
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 2	109.3	None

Table 7. 2012HS Thermal Overloads, Great Falls Generation Minimum

Outage	Monitored element	Overload %	Prebc %
N-0 conditions	GT Falls 230/100 kV transformer ckt 1	141.8	116.7
N-0 conditions	GT Falls 230/100 kV transformer ckt 2	136.6	112.4
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 1	182	156.4
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 2	175.3	150.6
GT Falls 230/100 kV transformer ckt 2	GT Falls 230/100 kV transformer ckt 1	228.9	186.9
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	150.4	126.4

Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	144.8	121.7
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	165.4	125.4
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	159.3	120.8
GT Falls – GT Falls 268 generator 230 kV line ckt 1	GT Falls 230/100 kV transformer ckt 1	141.4	115.8
GT Falls - Great Falls 268 generator 230 kV line ckt 1	GT Falls 230/100 kV transformer ckt 2	136.1	111.5

Table 8. 2012HS Thermal Overloads, Great Falls Generation Maximum

Outage	Monitored element	Overload %	Prebc %
N-0 conditions	GT Falls 230/100 kV transformer ckt 1	102.3	None
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 1	146.6	137.1
GT Falls – Ovando 230 kV line	GT Falls 230/100 kV transformer ckt 2	141.2	132
GT Falls 230/100 kV transformer ckt 2	GT Falls 230/100 kV transformer ckt 1	161.5	145.2
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	112.7	104.4
Broadview - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	108.5	100.5
Broadview - JGap South 230 kV line	Threeriv 161/100 kV transformer	109.5	None
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 1	130.3	106
GT Falls - JGap South 230 kV line	GT Falls 230/100 kV transformer ckt 2	125.5	102
GT Falls - Great Falls 268 generator 230 kV line ckt 1	GT Falls 230/100 kV transformer ckt 1	101.5	None

Following conclusions can be drawn from the co-existing findings:

- When the MATL flows were northbound, a flow of 300.3 MW was achieved at a phase shifting angle of +41.7 degrees in the 2010LA case and a flow of 300.8 MW was achieved at an angle of +42.4 degrees in the 2012HS case.

- Great falls 230/100 kV autotransformers are overloaded with the addition of MATL facility in 2010LA case under several N-1 conditions. Mitigation must be completed to fix problems when the overload in the Prebc column is "none", MATL will also be responsible for mitigating the difference in percent overload when the autotransformers are overloaded as identified in the Prebc column.

- Great Falls 230/100 kV autotransformers are overloaded with the addition of MATL facility in 2012HS case under several N-1 conditions. Mitigation must be completed to fix problems when the overload in the Prebc column is "none", MATL will also be responsible for mitigating the difference in percent overload when the autotransformers are overloaded as identified in the Prebc column.

Co-Existing Study Mitigation

Completing the following can mitigate the above stand-alone problems:

- MATL needs to consider the voltage set points of the switched shunts to prevent high voltages during all conditions (N-0, N-1 and N-2). Also, the high voltages at the proposed Marias and MATL 230 kV buses are present for all the other contingency conditions. Please see the limit checking reports in Attachment C for more details.

- The over load of the two Great Falls 230/100 kV autotransformers must be mitigated. The mitigation required must be coordinated with senior queue N-1 mitigation requirements. This is also a stand-alone problem.

Transient Stability Analysis

The Transient Stability Analysis examines the system performance after the loss of one or more transmission line(s), before the system settles to steady state operation.

Stand-Alone Study Findings

Stand-Alone Simulated Events

In each event description below, the term "fault" refers to a short-circuit between either a single-phase conductor and ground, or all three phases. The events simulated were:

1. A three-phase fault at the Great Falls 230 kV bus with the loss of Great Falls - Ovando 230 kV line.

2. A three-phase fault at the Broadview 230 kV bus with the loss of Broadview - Judith Gap South 230 kV line.

3. A three-phase fault at the Great Falls 230 kV bus with the loss of Great Falls - Judith Gap South 230 kV line.

The Stand-Alone Study did not find any stability problems associated with connecting the MATL 230 kV line to the Great Falls 230 kV Switchyard.

Co-Existing Study Findings

Co-Existing Simulated Events

1. A three-phase fault at the Great Falls 230 kV bus with the loss of Great Falls - Ovando 230 kV line.

2. A three-phase fault at the Broadview 230 kV bus with the loss of Broadview - Judith Gap South 230 kV line.

3. A three-phase fault at the Great Falls 230 kV bus with the loss of Great Falls - Judith Gap South 230 kV line.

4. A three-phase fault at the Great Falls 268 generator 230 kV bus with the loss of two Great Falls 268 generator - Great Falls 230 kV lines.

5. A three-phase fault at the Great Falls 268 generator 230 kV bus with the loss of two Great Falls 268 generator - Great Falls 230 kV lines with generator tripping at Great Falls 268 generator.

The Co-Existing Study did not find any stability problems associated with connecting the MATL 230 kV line to the Great Falls 230 kV Switchyard.

Fault Duty Analysis

When a fault or short circuit occurs on a power line, the protective relay equipment detects the increased current (i.e., fault current) flowing in the line and signals the line's circuit breakers to open. When the circuit breakers open they must be capable of interrupting the full fault current. The worst-case fault current is commonly referred to as the "fault-duty". If the circuit breakers cannot interrupt the fault-duty, the line that is faulted may not be switched out of service and voltages could collapse in the surrounding transmission grid. This event could lead to a wide spread outage.

The results from the Fault Duty Analysis identifies whether or not NWE's existing circuit breakers are capable of interrupting the additional fault-duty created by the addition of the proposed facility.

The events that were examined are listed below. In each event description, the term "fault" refers to a short-circuit between either a single-phase conductor and ground, or all three phases.

Stand-Alone Fault Duty Results

1. A three-phase fault at the Great Falls 230 kV bus.

2. A single-phase fault at the Great Falls 230 kV bus.

The breakers in the area have a sufficient interrupt rating to withstand the maximum short circuit current available with the addition of the MATL project. This project does not require improvements to NWE's existing circuit breakers for fault duty.

Co-Existing Fault Duty Results

The same two faults were examined in the Co-Existing Fault Duty Study. The addition of this project does not require improvements to NWE's existing circuit breakers.

Cost Estimates

Table 9 is a summary of the high-level non-binding cost estimates for the MATL Transmission Line Interconnect Project. The detailed cost estimates are listed below the table.

Table 9. Cost Estimates for MATL to interconnect

Interconnection Cost Estimate	$M *Cost*
230 kV Switchyard Upgrades	5.605*
Transmission Provider Interconnection Facilities	0.145
Total Cost Estimate	5.750

Upgrades

Great Falls 230 kV switchyard:

Replace the 2 - 100 MVA, 230/100 kV autotransformers with

2 - 200 MVA, 230/100 kV autotransformers	2@1.80M = $ 3.60* M
Add 2- 230 kV breakers	2@0.25M = $ 0.50 M
4 230 kV Air Brake switches	4@0.02M =$ 0.08 M
Bus work	=$ 0.125 M
Steel	=$ 0.250 M
Foundation	=$ 0.400 M
Relaying	=$ 0.300 M
Land	=$ 0.35 M
Total Cost	$ 5.605 M

In addition to the above costs, there are Transmission Provider Interconnection Facility (TPIF) costs that MATL will be responsible for. These TPIF cost estimates are the same as those presented in the previous SIS report assuming no changes have been made.

* This cost might be less, as the mitigation listed for the autotransformers (approximately $3.6M) is to be coordinated with the N-1 senior queue mitigation.

Transmission Provider Interconnection Facility Cost Estimate

Substation work	= $ 0.12 M
Metering	= $ 0.010 M
SOCC EMS	= $ 0.015 M
Total cost	= $ 0.145 M

Conclusions

This System Impact Study is an evaluation of the MATL projects interconnection to the Great Falls 230 kV Switchyard and does not constitute a request for transmission service. This study does not provide any definitive mitigation, that will be required to move power out of the Great Falls 230 kV Switchyard because NWE has not received a Transmission Service or Generation Interconnection Request. The users of the proposed MATL line must follow the procedures described in the transmission tariff available on NWE's OASIS site to request and/or reserve Transmission Service or a Generation Interconnection. The following conclusions can be made about the MATL projects interconnection to the Great Falls 230 kV Switchyard:

- The unused capability of the Great Falls 230 kV Switchyard without any system or network upgrades is 0 MW.

- The over load of the Great Falls 230/100 kV autotransformers must be mitigated. With the autotransformer upgrades, the MATL line will be able to connect its 230 kV line to the GF 230 kV Switchyard without further mitigation in the switchyard based on the information provided and analyzed in this study. The mitigation required must be coordinated with senior queue mitigation requirements.

- MATL needs to consider the voltage set points of the switched shunts to prevent high voltages during all conditions (N-0, N-1 and N-2). The high voltages at the new Marias and MATL 230 kV buses are present for the other contingency conditions too.

The above mitigation will be required before the MATL project can be connected to NWE's transmission system. The study results may change if there are changes to MATL's queue position or to the line design and interconnection specifications provided by you to NWE. Any variation in the line or interconnect specifications must be reported to NWE, so a thorough review and/or study can be conducted by NWE. Such review and/or study may yield results different from this analysis, and different mitigation requirements may be required.

A summary of the high-level non-binding cost estimates for the MATL Transmission Line Interconnect Project are shown below.

Cost Estimates for MATL to interconnect

Interconnection Cost Estimate	$M *Cost*
230 kV Switchyard Upgrades	5.605*
Transmission Provider Interconnection Facilities	0.145
Total Cost Estimate	5.750

* This cost might be less, as the mitigation listed for the autotransformers (approximately $3.6M) is to be coordinated with the N-1 senior queue mitigation.

Western Electricity Coordinating Council

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August 28, 2007

PLANNING COORDINATION COMMITTEE
OPERATING COMMITTEE
TECHNICAL STUDIES SUBCOMMITTEE

Subject: Montana Alberta Tie Ltd. Achieves Phase 3 Status

The MATL project initiated the WECC planning process on September 20, 2005. The Project is a 346 kM, 230/240kV transmission line designed for continuous bidirectional power transfers of over 300 MW. The project consists of a new substation in Alberta that ties into the existing 240 kV Alberta Interconnected Electric System (AIES) system. A phase shifting transformer will be installed to control flows both north and south and to step the voltage down from the Alberta nominal system voltage of 240 kV to the transmission line voltage of 230 kV. A mid-point substation named Marias will be built south of the town of Cut Bank, Montana. The Marias Substation will contain voltage support and be a connection point for proposed wind generation projects in the area. At the south end, the MATL transmission line will terminate at the existing Great Falls, Montana, 230 kV substation.

On February 2, 2006, the Project received Phase II status. A Project Review Group (PRG) was formed and was comprised of representatives from Bonneville Power Administration, Northwestern Energy, Western Area Power Administration, Avista Corporation, AESO, British Columbia Transmission Corporation, TransCanada – Northern Lights Transmission, PacifiCorp, Powerex, and ENMAX Power Corporation.

A Final Draft of the Phase 2 Report was submitted to the MATL Project Review Group (PRG) on June 11, 2007. All comments received have been addressed to the satisfaction of each party providing comments.

On July 25, 2007, MATL sent a request to the PCC to enter Phase 3, along with the PRG Report. No additional comments were received during the 30-day review process. Therefore, in accordance with the WECC Three Phase Project Rating Process, the MATL Project is hereby granted Phase III status with an Accepted Rating of +/- 300 MW.

Sincerely,

Brian Silverstein

Brian Silverstein

cc: Kent Bolton, WECC
Peter Mackin, USE

EXECUTION COPY

December 20, 2007

TRANSMISSION LINE INTERCONNECTION AGREEMENT

Between

MATL LLP

- and -

NORTHWESTERN CORPORATION

TRANSMISSION LINE INTERCONNECTION AGREEMENT

THIS TRANSMISSION LINE INTERCONNECTION AGREEMENT ("Agreement") is made and entered into this 20th day of December, 2007, by and between MATL LLP, a limited liability partnership organized under the laws of Montana, ("MATL"), and NorthWestern Corporation, a Delaware Corporation d/b/a NorthWestern Energy ("NorthWestern"). MATL and NorthWestern each may be referred to as a "Party" or collectively as the "Parties."

Recitals

WHEREAS, NorthWestern operates the NorthWestern Transmission System; and

WHEREAS, MATL intends to own and/or control and operate the MATL Transmission System;

WHEREAS, MATL and NorthWestern have agreed to enter into this Agreement for the purpose of interconnecting the MATL Transmission System with the NorthWestern Transmission System; and

WHEREAS, MATL and NorthWestern will also enter into the Coordinating Operating Agreement;

WHEREAS, MATL and NorthWestern recognize the need to protect the reliability of their respective transmission systems;

WHEREAS, MATL and NorthWestern intend that the interconnection between their systems will be completed in a manner that promotes reliability and compliance with all applicable statutory and regulatory obligations;

WHEREAS, MATL and NorthWestern recognize that generation connecting to the MATL Transmission System will affect the NorthWestern Transmission System; and

WHEREAS, MATL and NorthWestern wish to work collaboratively, in their respective roles, to establish, approve, enforce, administer, and manage the interconnection of third parties to the MATL system in a manner that promotes reliability and compliance with all applicable statutory and regulatory obligations.

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

Article 1. Definitions

When used in this Agreement, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used or the Open Access Transmission Tariffs ("OATT") filed by the respective parties as the context requires. In

EXECUTION COPY

30.9 Amendment. The Parties may by mutual Agreement amend this Agreement by a written instrument duly executed by the Parties.

30.10 Modification by the Parties. The Parties may by mutual Agreement amend the Appendices to this Agreement by a written instrument duly executed by the Parties. Such amendment shall become effective and a part of this Agreement upon satisfaction of all Applicable Laws and Regulations.

30.11 Reservation of Rights. Each of MATL and NorthWestern shall have the right to make a unilateral filing with FERC to modify this Agreement with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under section 205 or any other applicable provision of the *Federal Power Act* and FERC's rules and regulations thereunder and MATL shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to applicable provision of the *Federal Power Act* and FERC's rules and regulations thereunder, provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under sections 205 or 206 of the *Federal Power Act* and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

30.12 No Partnership. This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any Agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

30.13 Coordinated Operating Agreement. Except for purposes of carrying out the Interconnection Study and the filing of this Agreement with FERC and other applicable Governmental Authorities, this Agreement shall only become fully effective upon the Parties executing the Coordinated Operating Agreement.

IN WITNESS WHEREOF, the Parties have executed this Agreement in duplicate originals, each of which shall constitute and be an original effective Agreement between the Parties.

NorthWestern Corporation	**MATL LLP, by its general partner Montana Alberta Tie Ltd.**
By: _____	By: _____
Title: President + CEO	Title: _____
Date: 12/20/07	Date: _____

30.9 **Amendment.** The Parties may by mutual Agreement amend this Agreement by a written instrument duly executed by the Parties.

30.10 **Modification by the Parties.** The Parties may by mutual Agreement amend the Appendices to this Agreement by a written instrument duly executed by the Parties. Such amendment shall become effective and a part of this Agreement upon satisfaction of all Applicable Laws and Regulations.

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IN WITNESS WHEREOF, the Parties have executed this Agreement in duplicate originals, each of which shall constitute and be an original effective Agreement between the Parties.

NorthWestern Corporation		**MATL LLP, by its general partner Montana Alberta Tie Ltd.**	
By:	_____	By:	_____
Title:	_____	Title:	Chief Operating officer
Date:	_____	Date:	Dec. 20, 2007

EXECUTION COPY

By: Robert L. Williams

Title: Vice President, Regulatory

Date: 20 December 2007

APPENDIX N:
FARM COST REVIEW FOR MATL PROJECT (2007 AND 2008 COSTS)

Farming Cost Review (Final)
Montana-Alberta Tie Ltd.

Submitted to:
Environmental Management Bureau
Montana Department of Environmental Quality

Prepared Under:
State of Montana Environmental Services Term Contract (SPB06-81195O)
Task Order #01-CII

Prepared by:
HydroSolutions Inc
1537 Avenue D
Suite 340
PO Box 80866
Billings, Montana 59108
406-655-9555

and

Fehringer Agricultural Consulting, Inc.
7033 Highway 312
Billings, Montana 59105-5027
406-373-5985

July 12, 2007

July 12, 2007

Mr. Tom Ring
Environmental Management Bureau
Montana Department of Environmental Quality
PO Box 200901
1520 East Sixth Avenue
Helena, Montana 59620-0901

RE: Farming Cost Review Montana-Alberta Tie Ltd. (Final)
DEQ Contract #SPB06-81195O
Task Order #01-CII

Dear Mr. Ring:

HydroSolutions Inc and Fehringer Agricultural Consulting, Inc., is pleased to provide this Farming Cost Review Report for the Montana-Alberta Tie Ltd. presented under the State of Montana Environmental Services Term Contract (SPB06-81195O) for Task Order #01-CII to the Montana Department of Environmental Quality (MDEQ).

A report outlining objective and results of this review are attached. The report presents the findings of a detailed and critical review and a range of reasonable values for the annual cost to farming of transmission structures in their crop fields. The review was based on the use of most recent data available and realistic assumptions with respect to the extra work, inputs, yields and time needed by farmers, and was representative of farming in the Great Falls to Cut Bank, Montana area. Please refer to the attached report for specific details.

It has been a pleasure completing this review and look forward to working with you again in the future. If you have any questions, please contact us at (406) 655-9555.

Sincerely,
HydroSolutions Inc

Shane A. Bofto
Senior Chemical/Environmental Engineer

Attachment: Farming Cost Review – Montana-Alberta Tie Ltd.

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Executive Summary

This report presents a detailed and critical review of three existing studies that estimate costs of farming around transmission line structures to a 'representative farmer' in the Conrad, Montana area. As a result of the review, estimated ranges of reasonable values for the annual cost to farmers of transmission structures in their crop fields were made.

The studies reviewed included two from farmers in area of the proposed Montana Alberta Tie power line path, and one study conducted by researchers at North Dakota State University. The studies either over or under estimated the size of the footprint of land which would be taken out of production due to the obstruction. This was mainly due to either the lack of an implement transition area to navigate around the obstruction or the use of a large safety buffer.

The alternative analysis presented used likely transition areas and safety buffers around the pole(s) for the proposed structure types, orientation to the field and location in the field. A representative farmer was chosen to be either dryland or irrigated, where the dryland farmer grew spring wheat in fallow rotations as well as continuous crop spring wheat. Spring wheat was used because it had the highest value and expenses of crops grown in the in the proposed area. The irrigated farmer would also grow spring wheat for the same reasons listed above.

The results indicated that long-span 6.5-foot diameter mono-poles at the field edges would cost the least to farm around on an overall basis which considers multiple structures within the field. The long-span mono-pole layout would have a larger footprint than the short-span, but would have fewer structures to farm around per mile. On an individual structure basis, the 3.5-foot diameter mono-pole structure at the field edge would be the least cost to farm around.

A. Introduction

HydroSolutions Inc (HydroSolutions) is pleased to present this report in accordance with the Scope of Service for the Limited Solicitation for Farming Cost Review, Environmental Permit Preparation, Analysis and Assistance Services Term Contract, Contract # SPB06-81195O, Task Order # 01-CII, approved by the Montana Department of Environmental Quality (MDEQ) on June 4, 2007.

On April 27, 2007 the Montana Department of Environmental Quality issued a limited solicitation for a firm to complete the scope of Services described therein. The MDEQ has completed a Draft Environmental Impact Statement for the Montana-Alberta Tie Ltd. (MATL) 230-kV Transmission Line and is currently addressing comments on the Draft Environmental Impact Statement (DEIS). The scope included the review of three existing studies that estimated the cost of transmission line structures to a 'representative farmer' in Conrad, Montana area.

This scope of service was completed by HydroSolutions and Fehringer Agricultural Consulting, Inc. (Fehringer), an agronomic consulting firm.

B. Background

The MDEQ received comments on the DEIS indicating that locating H-Frame poles on diagonal crossing of cultivated fields has greater costs to farmers than locating the proposed line along field boundaries and section lines. Comments also indicated that the use of single pole structures along field boundaries would result in lower impacts to farming costs. The information in this review would be used with other information in the decision process whether to grant, deny or grant with conditions a certificate of compliance under Montana's Major Facility Siting Act.

C. Scope and Methods

The scope of service included the critical review of three studies that estimate the cost of transmission line structures to a 'representative farmer' in the Conrad, Montana area. Each study was reviewed for assumptions, cost inputs and total area taken out of production. A reasonable range of annual estimated costs to farmers were made due to the structures in their crop fields. The analysis and report was conservative in favor of farmers and used most recent date, realistic assumptions and was to be representative of farmers in the Great Falls to Cut Bank, Montana area.

HydroSolutions and Fehringer reviewed the three referenced studies for approach, applicability, scope, cost basis, timeliness of pricing, and practice. The most representative information was compiled and provided alternative sources of information to estimate cost impacts to farmers as a result of power line structures placed in agricultural fields located from Great Falls to Cut Bank, Montana. Farming expenses reflect 2007 costs and included the following: prices for fuel, maintenance and repair, fertilizer, pesticides, time and labor cost. The estimates were tailored in a conservative direction towards the farmers.

Two 'representative farmer' scenarios were created to accurately represent dry land and irrigated farming practices in the Great Falls to Cut Bank, Montana area. Items of focus included farming practices, size of machinery used, typical acreages farmed, typical crops and yields, and other regional characteristics.

The cost values developed were applied to the chosen "representative farmer' to develop a range of reasonable values for the annual cost to farmers per transmission structure for each of the structures that will be possibly used in their crop fields. The presence of these structures may result in both lost crop production from the structure footprint and overlapping of tillage and inputs as well as increased labor costs.

Several scenarios were addressed including two configurations, Mono-pole (both short-span and long-span) and H-frame, along with location of the power poles, to include edge or interior. As required in the solicitation, farming techniques using auto steer and GPS were of particular consideration.

D. Summary of Comments

D.1. MATL DEIS Analysis

A brief review of the MATL DEIS was made to determine its basis and assumptions. The DEIS Land Use analysis assumed a 5 foot buffer around each pole structure in any direction. The H-pole base area (1.5 feet by 23.5 feet) with 5 feet added to all sides was 0.0088 acre (385.25 square feet) removed from production per structure. The short-span mono-pole structure (1.75 foot pole radius plus 5 feet) would remove 0.0027 acre (143.14 square feet) per structure. Long-span mono-poles would remove more acreage from production because of their 6.5-foot-wide concrete foundations, but there would be fewer of them in comparison to the short-span design (DEQ, 2007).

The analysis also stated that farmers have to divert their equipment around structures, make additional passes, take additional time to maneuver equipment, skip areas, or retreat areas, production cost would increase. In addition, efficiency of some large, GPS-guided equipment would be adversely affected in fields with diagonal crossing. (DEQ, 2007).

The DEIS analysis reports (Table 2.3-1) that mono-poles were to be set on an average of 790 feet apart (about 6.6 structures per mile) for long-span, 490 feet apart (about 10.8 structures per mile) for short-span (regular). H-frame structures were to be set on an average of 790 feet apart (about 6.6 structures per mile).

Alternative 2 had no mono-pole structures but 6 acres removed from production. There were 742 H-pole structures spanning a total of 92.7 miles and removing 6.53 acres of production.

Alternative 3 had no mono-pole structures but 6.3 acres removed from production. There were 782 H-pole structures over 97.7 miles with 6.88 acres removed from production.

Alternative 4 had 588 long-span mono-poles or 947 short-span mono-poles over 87.9 miles. There was 3.7 acres removed for production for the long-span, and 1.4 acres for the short-span. There were no H-pole structures in Alternative 4.

As presented in the MATL DEIS analysis, total acreage removed from production for Alternatives 2 and 3 was 12.53 and 13.18 acres, respectively.

Total acreage removed from production for Alternative 4 was 3.7 acres for long-span mono-pole structures and 1.4 acres for short-span for mono-pole structures as there were no H-pole structures used in Alternative 4 (DEQ, 2007).

D.2. Public Comments and Studies

There were three cost analysis studies reviewed for this report. The first was prepared by Allen Denzer of Conrad, Montana, the second was prepared by Brent MacDonald of Brent MacDonald, Inc. of Floweree, Montana, and the third was a spreadsheet model prepared by Dr. Eric A. DeVuyst, Dean A. Bangsund, and Dr. F. Larry Leistritz. Copies of the comments and studies are included in Appendix A.

Each study was critically reviewed for assumptions, inputs such as costs and acreage taken out of production, and formulas. The results of each study review is detailed below.

D.2.a. Denzer Study:

The Denzer study had concerns regarding farming operation around H-frame and Single-pole structures. Also, there were some concerns regarding the use of Global Positioning System (GPS), yield mapping, and variable rate fertilizing around poles. The Denzer study also had concern with the North Dakota study not addressing GPS auto steering around poles and the model was incomplete and used custom farming rates which did not apply.

This study assumed that the lead implement would always be the first to encounter the structure, Also, that the equipment would to be working in unison so one or two pieces of equipment would have to wait for the lead implement to make a lap around an interior pole(s).

If pole(s) are in the middle of the field, it would take alternative planning so that implements are not standing by as another implement is detouring around the pole structure. This could be accomplished by increasing the separation of the implements or work from two sides of a field.

The entire field still required spreading a wildoat herbicide ("Fargo"), spraying, seeding, harvesting, etc., but it will take longer.

Input costs are high or inadequately defined. Crop loss would not be 50% as stated in the study, but likely no more that 20% as used in the alternative analysis.

In regard to yield mapping, GPS and auto-steer, manufacturers have procedures for obstruction avoidance in fields. These obstructions would not be the first ones that this technology has had to encounter.

Structures at field edges would create less of a footprint and cost to farm around. The direction of farming would not matter with edge structures because one to two passes are typically made parallel to all field edges when beginning or ending a field. This creates an area for turning around when approaching field edges at an angle or perpendicular.

For structures placed in the interior of a field, it would not matter what direction the structures are oriented, it is still the same sized obstruction. If they are parallel to the direction of a farming operation, they would all be encountered in the same pass. If they are perpendicular or diagonal to the direction of the operation, they would be encountered in multiple passes – one at a time. There certainly will be more per section on a diagonal direction. However, not all fields run east and west or north and south.

The number and type of operations; as well as, size of equipment used were helpful in creating the alternative analysis. All necessary operations for a cropping cycle were not listed. Please refer to the alternative analysis for specific cropping cycles. No consideration for loss of crop quantity and/or quality was listed.

D.2.b. MacDonald Study:

The major concerns of the MacDonald study appeared to be related primarily to the farming operation around the towers associated with GPS auto steer and diagonal lines. Also, concern was raised regarding the increase of specific farming costs since the original analysis was performed.

The safety buffer was figured at 20 feet instead of five feet. This added considerable area to the total outage from each pole(s) and was not necessary. Most farmers will farm closer than five feet. By using the 20 foot safety buffer, overlap area has been over estimated.

The MacDonald study figured a required minimum of 1.5 revolutions around a pole. Farming around an interior structures merely adds one revolution (merely 360 degrees), not 1.5. If 1.5 revolutions (540 degrees) were made, the farmer would be headed the opposite direction as to the approach of the structure. It will not take an additional revolution to "get the GPS back on track". Tracking would be instantaneous. Auto-steer can be turned off and on at obstructions and at the ends of a field. Again, overlap area has been over estimated by Mr. MacDonald.

Glyphosate ("Roundup") cost listed in this study was double that of current actual costs. Application expense was listed at $3.75 per acre, and typical farming cost may be consistent with that value, although custom application would be closer to $5.00 per acre.

Aerial applicators have to consider a number of obstacles – regular power lines, trees, towers. They do not charge more for spraying field with obstructions, but they may leave small untreated areas to avoid the obstructions.

The number and type of operations as well as size of equipment was helpful in creating the alternative analysis. Not all necessary operations for a cropping cycle were listed. No consideration for loss of crop quantity and/or quality was listed.

D.2.c. DeVuyst Study:

The DeVuyst study estimated cost based on footprint of the towers using various assumptions such as; operations are not discontinued when overlap begins, custom application rates were adequate to cover individual farmer's cost of application, easement settlement covers lost production from the tower footprint and existing crops without irrigation is continued in the foreseeable future.

The study was comprehensive, compared to the other studies reviewed, as it considered more pole scenarios. It considered all crops that could be grown in the area of this power line. Footprint diagrams do not depict actual farming patterns around poles. It assumes that the crop is 100% destroyed by the sprayer's tire tracks. That is not the case unless the crop is being sprayed at the wrong growth stage. More damage is done by doubling the rate of seed, fertilizer (on dryland), and herbicides. Costs for farming around poles were more accurate and more agronomically complete than the previous two studies.

E. Alternative Analysis

Based on the review of the above referenced comments and studies, and the MATL DEIS, an alternative analysis is presented below.

E.1. Pole Layouts

A range of most frequently encountered specific pole layouts were evaluated and are presented on Figure 1, Pole Configuration Footprint Layouts. These areas represent the portion of land adjacent to the pole(s) that would not be farmed due to impedance to the farming implements resulting in the portion of land that is taken out of production. Power poles were in two structure types, Mono-pole and H-pole. Mono-poles consisted of a 3.5-foot diameter pole (short-span) or

6.5-foot (long-span) wide concrete foundation, and an H-hole, which consisted of two 3-foot diameter poles spaced 20 feet apart at the centers or 23 feet apart at each outside diameter.

Mono-poles were either located at the edge of the field (Layouts A & B) or in the interior (Layouts C & D). H-poles were oriented either perpendicular with, and at the edge of the field Layout E), perpendicular with, and at the edge of the field and straddling the fence line (Layout F), parallel with, and at the edge of the field (Layout G), and interior (Layout H).

A safety buffer of 5 feet was used around the outside diameters of each pole to assess footprint areas around each structure, location and orientation using conventional farming techniques. The safety buffer is generally dependent upon the specific field, equipment and operator experience, but in this case a 5-foot safety buffer should be adequate to safely clear the pole(s) using typical equipment while still optimizing farmed area.

These footprint areas also consider transition lengths used to navigate farming equipment around the structure located along the edge to maintain the 5-foot safety buffer and return to the previously established row track. These transition lengths include an approximate 1.3:1 (transition length to diversion) transition length for the edge pole(s) diversion (A, B, E, F). These transition lengths are used for pole(s) locations on field edges. For H-poles located parallel and adjacent to the property line (G), a 1:1 transition length was used due to its longer parallel section and flatter transition along the parallel poles adjacent to the property line. This transition does not require the implement to swing out as far as the other edge layouts. Please refer to Table 1 for estimated footprint areas.

E.2. Representative Farmer

This analysis is based on the ‘representative farmer’ scenarios which represent dry land and irrigated farming practices in the Great Falls to Cut Bank, Montana area. Costs used in the analysis reflect up-to-date information by using current 2007 prices. Fertilizer prices were obtained from Farmer’s Union, (Personal Communications, Farmer’s Union, June 2007).

Herbicide costs were taken from Wilbur-Ellis' 2007 Price List and reflect highest retail cost (Wilbur-Ellis 2007).

A typical dry land field was chosen to grow spring wheat in fallow rotation as well as continuous crop spring wheat. Spring wheat is used because it has the highest value of crops grown in the proposed area. Currently, spring wheat is trading at near $6.00 per bushel. Winter wheat is worth about $5.50 per bushel, and it will generally yield more than spring wheat but the gross per acre will be more with spring wheat. Winter wheat is not a crop that survives winters consistently in the Cut Bank, Montana area. Malt barley is approximately $4.40 per bushel and will yield more than spring wheat but spring wheat will still gross more per acre. In addition, spring wheat requires more fertilizer per acre, particularly nitrogen, than winter wheat, durum, canola, and malt barley. In summary, spring wheat was used because it is the highest valued per acre crop, has the highest inputs per acre, and can be grown in all parts of the proposed area. If a farmer chooses to plant something other than spring wheat, the cost of farming around the poles will be less. Spring wheat provides the worst case scenario from the farmer's perspective.

For dry land crop production, both wheat-fallow rotation and continuous crop farming were evaluated because both practices are used in this area. Many farmers will flex crop, which is recropping a field when enough stored soil moisture is present at planting time to assure a profitable yield. If stored soil moisture is below average, the farmer then chooses to fallow.

A typical irrigated field was chosen to also grow spring wheat for the same reasons listed in the dry land section above. Irrigated malt barley generally has been a more profitable crop than spring, winter wheat, canola, etc., but at the time of this writing, spring wheat has surpassed malt barley. Again, using spring wheat for the irrigated crop provides the worst case scenario.

E.3. Row Layout

The row layout was applicable to farming equipment with GPS and auto-steer. Please refer to Figure 1 for specific pole layouts.

E.3.a. Layouts A, B, E, F and G:

These layouts represent pole(s) locations at the edge of a field. It was assumed that the farmer would not be able to use auto-steer on the initial pass on the field edge containing poles. In this analysis, ample transition space was created to easily farm around the pole. On the second pass, the farmer would establish the AB line for auto-steer or GPS light bar guidance. The transition varied with the type of structure, location and orientation, but always included a 5-foot safety buffer.

E.3.b. Layouts C, D, and H:

Interior Mono-pole or H-poles orientation assumed that the farmer would approach the pole(s), turn off the auto-steer, and divert either left or right while maintaining the 5-foot safety buffer. Upon reaching the other side of the pole(s), the tractor and implement would continue around the pole(s) to make an additional 360 degrees and then return to using auto-steer and following the previously established row track. Farming around the pole(s) involves only one lap around the pole not 1.5 to 2.5 extra revolutions as listed in the Denzer and MacDonald studies.

E.4. Overlap

Using the footprint areas, overlaps of farming rows were calculated using standard implement widths for harrowing, discing, toolbarring, chemical spraying, “Fargo” (wild oat control) application , fertilizer application, seeding, and combining. Implement widths are presented in Table 1. These implement widths were typical of those used in the Great Falls to Cut Bank, Montana farming area, as indicated by the Denzer and MacDonald studies referenced above. Using the footprint areas and implement widths, overlaps were calculated for each pole configuration and orientation using the selected implements for each specific process.

The overlap areas were calculated by adding the footprint areas for the pole(s) at the edge of the field to the implement width chosen. This would account for the implement moving out and around the pole(s) footprint on the first pass, moving into the adjacent row path and overlapping the width of the footprint. The overlap for the interior structures assumed a 360 degree path around the pole(s) footprint, which includes the 5-foot safety buffer, with the selected implement width added.

E.5. Estimated Costs

Cost for labor, materials, and equipment were estimated from various sources including custom farming and application rates (University of Wyoming "Custom Rates for Wyoming Farm and Ranch Operations, 2004-2006" and Personal Communications, Farmer's Union, June 2007, respectively) site specific vendor information, and personal communications with regional farmers. Provided below is a brief description of the various farming operations anticipated for the Great Falls to Cut Bank area. The information is reflected on Attachments DL-1 to 16 and IRR-1 to 8 found in Appendix B and C, respectively.

Many dry land farmers heavy harrow to incorporate seeds after harvest so that they germinate more uniformly, especially in drier years. Harrowing also distributes crop residue if it did not get uniformly spread behind the combine. Heavy residue rows can cause disease problem, especially when continuous cropping.

Irrigated farmers will most likely disc their fields one to two times after harvest and toolbar it one to two times before planting. For these analysis, two of each of these operations have been included.

Fallow and preplanting sprayings listed represents the highest number of applications needed per year. A farmer may have fewer applications than listed. Herbicide rates are typical for this type of spraying. In addition to the "Roundup" for first fallow application, dicamba ("Banvel") was added to the mix as this would be the ideal mixture but would cost more per acre than if "Roundup" only was applied. The addition of dicamba would provide extended broadleaf weed control and is a prudent practice to reduce the risk of creating "Roundup" resistance in the weeds. For preplant spraying, only "Roundup" was applied for both dry land and irrigated fields.

In regard to wild oat control, "Fargo" application at 15 pounds per acre was used because this is the most expensive method of controlling this weed. It requires a separate application and possibly a harrow incorporation. If a grower uses a post-emergent herbicide that can be tank mixed with the broadleaf weed herbicides, then there is only one application of herbicides to the

field, not two and no incorporation with a harrow. Lastly, 15 pounds per acre of "Fargo" was the rate used for barley and winter wheat. Ten to twelve and one-half pounds per acre is the labeled rate on spring wheat. Again, all inputs were designed to be a worst case scenario.

Prices used for fertilizer reflects the cost spike that has occurred in 2007, $450 per ton for 46-0-0, 11-52-0, and 18-46-0. For dry land crops, fertilizer banded with the seed would be 60 pounds per acre of 11-52-0 or 18-46-0. Topdress nitrogen was 55 actual units (pounds) of nitrogen per acre for a total of 61 pounds of nitrogen per acre since six pounds are applied via the 11-52-0 banded with the seed. These amounts of nutrients would be adequate for a spring wheat-fallow rotation yield goal of 50 bushels per acre. For continuous crop dry land spring wheat, 69 pounds of actual nitrogen was topdressed for a total of 75 pounds per acres (including fertilizer banded with the seed) for a yield goal of 35 bushels per acre. For irrigated spring wheat, 80 pounds of 11-52-0 was banded with the seed. Nitrogen applied for a 90 bushel per acre yield goal was a total of 210 pounds per acre. Crop yields listed are from Fehringer's personal knowledge from production in the area and Montana Agricultural Statistics website (USDA 2007).

Seeding rate was figured at 70 pounds per acre for dry land and 100 pounds per acre for irrigated land. The price used is for certified seed that has been cleaned and treated.

Herbicides listed for in-crop spraying to control broadleaf weeds are the more expensive ones available. Herbicides used have only a 60 day plant back restriction so any crop can be planted the next growing season.

Harvesting expense was calculated at custom rates. Overlap was figured for combining even though custom harvesters charge by the acre and what the crop is yielding. They do not have a surcharge for cutting around obstructions.

Crop loss due to overlap was figured at 20% of the yield goal. Yield loss would be from reduced yield and/or quality (test weight, protein, etc.). Yield loss for edge poles would be only the

footprint area shown for Layouts A, B, E, F, and G. Yield loss for poles in the field interior was much larger because of having to overlap for one revolution around the pole(s) (Figures C, D, H). The amount of area used was figured by taking the largest implements listed in Table 1, which are sprayer and "Fargo" applicator.

Harrowing, toolbarring, discing, fertilizer application, seeding, and harvesting are all smaller equipment, but again, the worst case situation was used. Crop spraying and "Fargo" application would result in the largest yield loss due to double applying herbicides. Double application would cause the most crop stress. In addition to the reduced yields from overlap, farmers would not have the area of the structure footprint in crop any longer. The foot print areas for each pole situation are shown in Table 1.

Weed control in the pole footprint was also addressed. The best option would be to establish grass in the footprint area. However, this might present a fire danger that MATL does not want to have. In lieu of having grass established, total vegetation control would be the next best option. This could be accomplished each fall by an application rate of up to five quarts of diuron, three pints "Arsenal", and "Roundup" per acre to each footprint area. Winter moisture would incorporate the herbicides into the soil so that vegetation is controlled all season long. Cost for these herbicides was approximately $150 per acre. Two hundred dollars per acre had been allotted in the cost analyses to cover any other herbicides selected.

Farming Cost Sheets for each dry land and irrigated scenario are included in Appendix B and C, respectively.

E.6. Results

The alternatives analysis included dry land with a spring wheat-fallow two year crop rotation and continuous cropping spring wheat. Irrigated land included raising continuous spring wheat. Each layout was considered in the evaluation. Results of the Alternative Analysis for dry land and irrigated farming are summarized in Tables 2 and 3, respectively. For MATL and the growers, structures at field edges would cost less to farm around than interior poles.

The results indicated that long-span 6.5-foot diameter mono-poles at the field edges would cost the least to farm around on an overall basis which considers multiple structures within the field. The long-span mono-pole layout would have a larger footprint than the short-span, but would have fewer structures to farm around per mile. On an individual structure basis, the 3.5-foot diameter mono-pole structure at the field edge would be the least to farm around.

All care should be taken to not place structures in a sprinkler irrigated field; due to the additional costs of having to break apart a wheel line to move it past a pole(s) and the cost of disrupting a pivot from making a complete revolution. Those costs have not been addressed in the alternate analysis because each field will have a unique situation to calculate. Pole(s) in flood irrigated fields will have additional costs beyond overlap costs. Again, cost depends upon its location in the field, top, middle, or bottom of field. Structures at the top of the field will result in less crop watered down slope than crop located in the in the middle or bottom of the field. Cost of interior pole(s) will be also influenced by the length the water has to travel.

F. Standard of Care

Services performed by HSI personnel for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession, currently practicing in this area under similar budget and time restraints. No warranty, expressed or implied, is made.

G. References

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University of Wyoming "Custom Rates for Wyoming Farm and Ranch Operations", 2004-2006, Hewlett, John P. and Sedman, James, May 2006.

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Figure

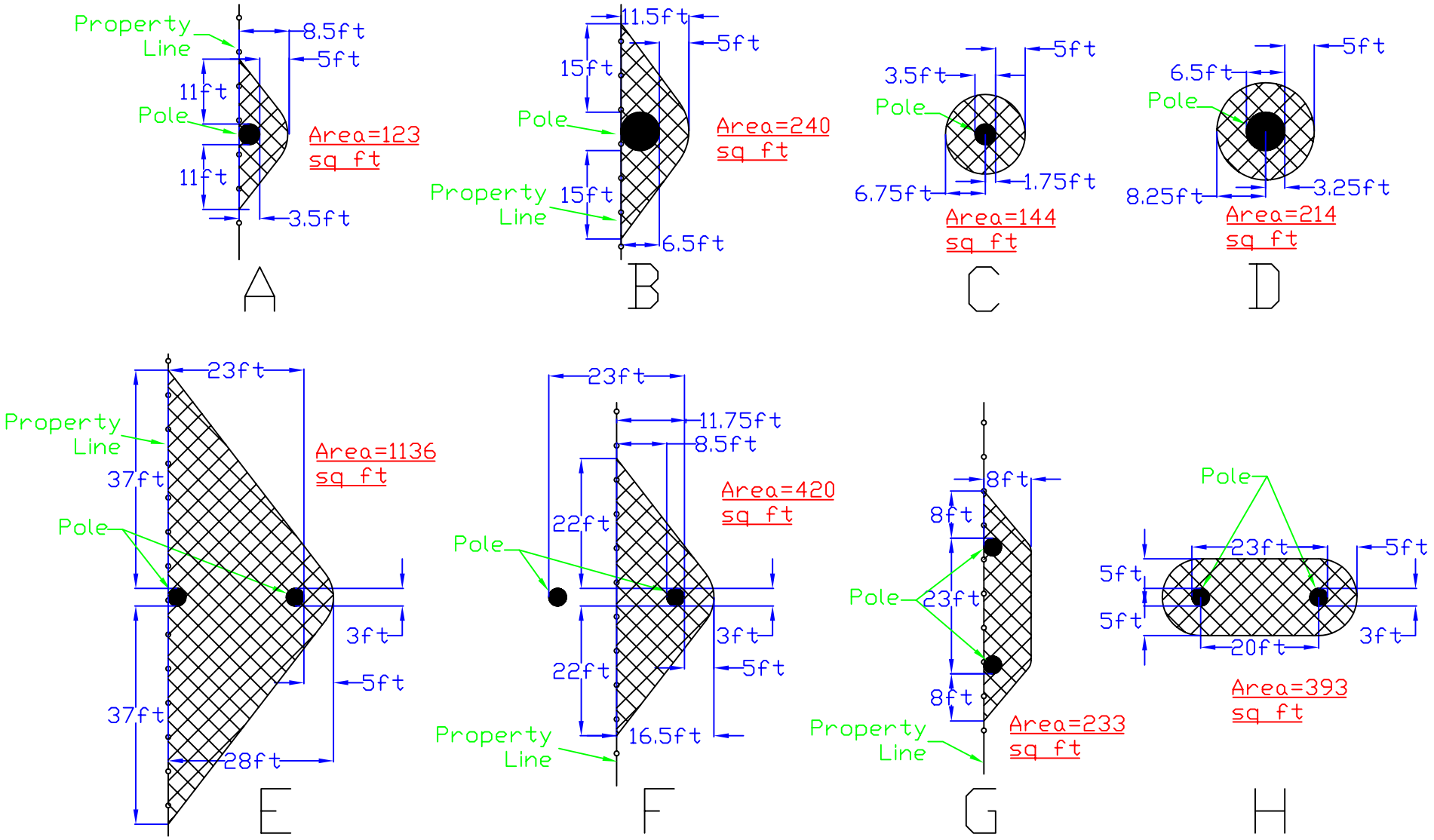


FIGURE # 1	INT	DATE
	DRAWN BY: sab	07/12/07
	APP'D BY: sab	07/12/07
	JOB No. DEQ Farming	
	DWG. No. Figure 1	SHEET OF
	SCALE NA	

Pole Configuration Footprint Layouts
MATL Farming Cost Review

Montana Department Of Environmental Quality

Tables

Table 1. Footprint and Overlap

Layout[1]	Structure	Pole Diam. (ft)	Location	Orientation	Minimum Buffer Distance From Center of Pole (ft)	Footprint (square feet)	Implement Width (feet)			
							70	120	36	60
							Overlap (square feet)			
							Harrow	"Fargo" & Spraying	Disc & Combine	Fertilizing, Toolbar & Seeding
A	Mono-pole	3.5	Edge		1.75	123	123	123	117	123
B	Mono-pole	6.5	Edge		3.25	240	240	240	207	240
C	Mono-pole	3.5	Interior		1.75	144	18,362	50,328	5,597	13,854
D	Mono-pole	6.5	Interior		3.25	214	19,022	51,459	5,937	14,420
E	H-pole	3.0	Edge	Perpendicular	1.5	1136	1,136	1,136	1,136	1,136
F	H-pole	3.0	Edge	Straddling	1.5	420	420	420	420	420
G	H-pole	3.0	Edge	Parallel	1.5	233	233	233	233	233
H	H-pole	3.0	Interior		1.5	393	21,052	54,490	6,982	16,160

Notes: [1]From Figure 1.
Mono-pole: Regular and long span are 3.5 and 6.5-ft diam, respectively.
H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.
Safety buffer: 5-ft.

Table compiled by Shane Bofto, Engineer & Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/12/07.

Table 2. Dryland Costs of Farming Around Pole(s).

Layout[1]	Structure	Pole Diam. (ft)	Location	Orientation	Farming Practice			
					Spring Wheat-Fallow		Continuous Crop	
					Information Source	Annual Cost (per structure)[2]	Information Source	Annual Cost (per structure)[2]
A	Mono-pole	3.5	Edge		Attachment DL-1	$13.81	Attachment DL-9	$14.22
B	Mono-pole	6.5	Edge		Attachment DL-2	15.06	Attachment DL-10	15.86
C	Mono-pole	3.5	Interior		Attachment DL-3	105.09	Attachment DL-11	156.01
D	Mono-pole	6.5	Interior		Attachment DL-4	107.98	Attachment DL-12	160.44
E	H-pole	3.0	Edge	Perpendicular	Attachment DL-5	37.13	Attachment DL-13	40.91
F	H-pole	3.0	Edge	Straddling	Attachment DL-6	20.98	Attachment DL-14	22.38
G	H-pole	3.0	Edge	Parallel	Attachment DL-7	14.99	Attachment DL-15	15.76
H	H-pole	3.0	Interior		Attachment DL-8	120.57	Attachment DL-16	177.74

Notes: [1]From Figure 1.
[2]Cost reflect 2007 prices.
Mono-pole: Regular and long span are 3.5 and 6.5-ft diam, respectively.
H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.
Safety buffer: 5-ft.

Table compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/21/07.

Table 3. Irrigated Costs of Farming Around Pole(s).

Layout[1]	Structure	Pole Diam. (ft)	Location	Orientation	Irrigated Cropping	
					Information Source	Annual Cost (per structure)[2]
A	Mono-pole	3.5	Edge		Attachment IRR-1	$15.60
B	Mono-pole	6.5	Edge		Attachment IRR-2	18.69
C	Mono-pole	3.5	Interior		Attachment IRR-3	258.67
D	Mono-pole	6.5	Interior		Attachment IRR-4	266.61
E	H-pole	3.0	Edge	Perpendicular	Attachment IRR-5	41.81
F	H-pole	3.0	Edge	Straddling	Attachment IRR-6	23.34
G	H-pole	3.0	Edge	Parallel	Attachment IRR-7	18.51
H	H-pole	3.0	Interior		Attachment IRR-8	290.41

Notes:
[1]From Figure 1.
[2]Cost reflect 2007 prices.
Mono-pole: Regular and long span are 3.5 and 6.5-ft diam, respectively.
H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.
Safety buffer: 5-ft.

Table compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/21/07.

Appendix A
Comments

I Allen Denzer, Terri Denzer, and Darlene Denzer appreciate the effort the DEQ put into the Draft Impact Study and statement.

Upon reading it I noted you took into account the following:

1. All the concerns raised by myself and the other farmers
2. Single poles.
3. Non diagonal.
4. Diagonally only on grass land.
5. Difficulty farming around 2 power lines in close proximity to each other.
6. Weed control around double poles.
7. Added liability with poles in the middle of fields.

Concerns we have that need to be addressed.

1. The difficulties our son will have operating around an H frame or a Single pole structure. Rick lost his arm 3 years ago. We have made many improvements to help him with this, by moving all unnecessary structure that are in his way. He is the 5th generation on our family farm and wants to continue to farming. With his son we are looking at a 6th generation of farming. Rick's capability has changed making him unable to use some of the old machinery, but is able to use modern guidance equipment. All consideration should be taken to help him continue farming. These diagonal poles will be one more obstacle he has to negotiate around for the rest of his working life adding a great burden on his other arm. Using Alternative 4, or moving the line south by ¼ mile would take it off our crop land giving Rick the opportunity to farm with less interference. This power line should be done right the first time, for the impact we will have to live with forever.
2. Modern GPS, auto steering, yield mapping, and variable rate fertilizing doesn't work in fields with poles in them. As you cut around and around these poles to clean up your skips the yield monitor records a very low yield, as it thinks the 36 ft. header is full not just cutting skips. The next year the variable rate fertilizer come to the pole and is told because of the low yield last year to dump on the fertilizer to make up for the pervious low year. You have just created a big problem as far as quality and yield of your crop, wasted fertilizer and possibility environmental concerns by going way beyond the recommended rate. The problem continues with chemical applications being doubled or tripled.

Modern farming has progressed very rapidly within a few years these guidance systems will not even need a human in the operating cab. John Deere has an unmanned tractor testing now that doesn't have an operator seat. We will see these in the near future except in fields with power poles, oil wells, and other obstacles.

Farmers make sacrifices for the good of the public, but we shouldn't have to sacrifice our progress of the future for the cheap way out now. Again you need to know the farmers expenses and try to figure out want they well be in 10 to 50 years. Once the power line is built, MATL will have little maintenance for years. (Northwest

line has had no poles replaced on our farm since being built in the 60's). So MATL has basically a one time expense while the farmer will have continued expense.

3. On December 10, 2006, I met with MATL's people, and the North Dakota professors MATL haired to calculate the cost to farm around the poles. In the professors opening statement he stated GPS auto steering makes farming around the poles way easier, enabling you to get closer to the poles. I informed him that GPS and auto steering doesn't drive themselves around the poles and are incapable of sensing an object ahead of them. He agreed that he hadn't used it but his students told him they could. There model was very incomplete as it showed the impacted area of the pole on the boarder of a field being a perfect ½ circle which its not. Their model showed the impacted area around the poles in middle of the field as being a perfect circle the width of the implement which is again wrong. As it takes at least 2 circles around the poles to get all the corners and skips. Their model uses custom per acre rates which don't apply here. The custom rate is figured at doing a whole field or farm at a normal ground speed, not going slowly around and around poles. There is a lot of time and productivity lost with these poles in the middle of a crop field. There is no time lost with poles on the edges of fields.

We are again sending you our cost to farm around the poles:
Example:
What our yearly cost is on the existing H structure:

(1)-**Fargo application**

2-60 ft Fargo (wild oat spreaders), working together at 15 mph. 112 acres per machine.

One works around poles while to other one sits and waits.
$5.00 dollars an acre for each machine
$17.00 an acre of chemical
3 minutes lost per pole X 2 = $55.99 lost production.
17.00 dollars x 2 acres chemical overlap= $34.00 dollars.
$55.99
$ 34.00

$ 89.99

(2)- **Broad Cast Fertilizer**

60 ft. at 15 mph. = 112 acres per hour. Rate $5.00 acre around poles loss 3 Minutes=$27.99
Fertilizer doubled around poles = $52.49
$350 per ton at 150pounds an acre x 2 $ = 52.50
$52.49

$52.50

$80.49

(3) **Pre Plant Spray**

3 Sprayers:

90ft. at 12 mph at $5.00 per acre 116 acre per hour
90 ft at 12 mph at $5.00 per acre 116 acre per hour
60 ft at 12 mph at $5.00 per acre 87 acre per hour

One sprayer goes around poles while the other 2 wait at in line for the first to get back in the row. Time lost 9 minutes =$230.00

Chemical = $ 9.18

$248.43

(4) **Heavy Harrow**

60 ft. at 14 mph = 105 acres per hour
$5.00 per acre, 3 minutes lost =
$26.25

(5) **Seeding:**

57 ft. air drill at 6 mph, $42.75 acre per hour at $7.00 per acre
525 hp tractor
3 minutes lost $14.97
Seed and fertilizer $24.00 x 2 =$48.00
$14.96
$ 48.00

$62.96

(6) **Weed spraying same as #3 for time and machinery**

Time $239.25
Chemical
$15.00 x 2 $30.00

$269.25

(7) **Harvest:**

3 combines; tractor and grain cart working together totals $1,000.00
Investment one cuts around poles while the others wait. Operating cost of

$160.00 an hour, for each combines. Loss 9 minutes
Loss $72.00

Summer fallow second year:

4 sprayers operation the same as # 3

248.43
X4

$ 993.72

Cost 2 seasons = $1843.09

Or $921.54 per year

Crop Loss:

75 bushels x $4.00 =$300.00 an acre x 2 acres x 50 % reduced production
$300.00 per crop
Or $150.00 per year

A senior loan officer from Northwest Farm Credit looked over our figures and said some were a little high and some were a little low but that our price came out the same as his.

Total cost per year is: $1071.54

These were 2005 production costs

Plus additional weed problems and liability.

The farmer should know exactly what the costs to farm around the poles are. They do it year after year. A computerized program is not capable of figuring out wasted time, double seeding, double spraying, compaction of the ground, loss in bushels per acre, loss of spray, etc, etc, etc. Why should we settle for less? What MATL is offering is nothing compared to our real costs. MATL is out to make a profit for the businessmen of Canada. MATL will recover the cost of alternative 4 in a mater of months while it takes farmers 20 to 30 years to pay for their land, shouldn't the farmers of the United States still be able to keep making the profit they were making before MATL decided to make another power line. This power will be sent out of state, used in Canada, not one bit in Montana.

We have Northwestern double diagonal poles in our fields that create a lot of problems and cost. We also have 5 miles of the WAPA line running down section lines and field boarders that create no problems or additional costs.

4. Alternative 4 seems to be a will thought out that covers all my concerns. Alternative 2 basically fallows MATL's route in being the cheapest for a

foreign company building in the United States. The state of Montana should only be worried about doing what's right for its citizens, and shouldn't concern itself about Bob Williams comment that they can't afford alternative 4. The draft should not take into consideration that MATL already has easements on some land. Farmers that signed did so under derris, they were told to sign or be condemned, MATL's right a way agents and lawyer, misled local farmers telling them they had to sign and they were the only ones that hadn't. We were even told we had 3 day to sign. That the line was decided. MALT went ahead and got some easement before the DEQ had made they decision where the line should go. I feel this put added pressure on you to decide on their route.

5. The DEQ worked very hard to figure the impact on the Canadian MATL Company, the water, antelope, birds, mule deer, and teepee rings, but seemed to leave out the financial impact on the Montana's farmers. We have paid our taxes and donated our land for roads, highways, power lines, missile lines and sights, fiber optic lines, petroleum lines, and oil wells. The state should recognize this and make sure when this power line is built that it is the best for everyone. I hear politicians stating this is so good and if they went through there land they'd give it to them. Words are cheap. I guess I would say that to, if they were not even near my land. This seems to me that the politicians always have ideas how to use farmers land. Like the wolf and bear introductions. Again the farmer and rancher have to take it and can't protect what's theirs. Why is this? I hope the DEQ decides on the right way to do this power line and not buckle to political pressure.

Allen Denzer

Terri Denzer

Darlene Denzer

P.O Box 936
Conrad, Montana
59425-0936

Phone: (406) 278-3341

Actual costs of farming around a double pole utility set:

16.5 feet x 2640 ft.(1/2 mile) = 1 acre or 43560 square ft.

Spraying with a 120 ft sprayer: 160 ft. diameter circle (leaving 20 ft around poles) 160 x 3.1416 = 502 ft. x 1.5 = 753.9 linear ft.

120 ft./ 16.5 = 7.272727 acres/ 2640 ft. = .002755 acres per ft. x 753.9 ft = 2.0768 acres per pole set.

application costs: $3.75/ acre
chemical costs: $6.00/ acre (Roundup)
$9.75 x 2.0768 x 4 = $81.00 (4 applications of Roundup)

Maverick costs: $11.00/ acre + $3.75 app. = 14.75 x 2.0768 acres = $30.63
Total cost of going around a pole 1.5 times = $101.63

If we have to go around a pole an additional time to keep the GPS on track, it will be a 280 ft dia. or an additional 2.42 acres.
$9.75 x 4 x 2.42 = $94.38 (Roundup cost)
$14.75 x 2.42 = $35.70 Total of second loop: $130.08
Total cost of 2.5 loops $231.71

Heavy harrowing with a 70 ft. tool: 90 ft. dia. (leaving 10 ft. around poles) 90 x 3.1416 = 282.75 ft. x 1.5 = 425 ft.
70/16.5 = 4.25 acres/ 2640 ft. = .001606978(acres per ft.) x 425 ft. = .683 acres at $ 10.00 = $ 6.83 per pole set.
An additional time around poles at 160 ft. dia = 502.66 ft. or .8 acres x $10.00 = $8.00
Total cost of 2.5 loops: $14.83

Seeding with a 60 ft air drill: 80 ft dia x 3.1416 = 251.328 x 1.5 = 377 linear ft.
60/16.5/2640 = .00137741 acre per ft. x 377 ft. = .52 acres
Fertilizer: $36.00/ acre
Seed $7.50 / acre
Application $12.00/ acre
total $ 55.50/ acre x .52 = $28.86 per pole set
An additional time around a pole set at 140 ft. dia. = .6058 acres x $55.50 = $33.62
Total cost of 2.5 loops: $62.48

Combining with a 36 ft. header: 82 ft. dia. x 3.1416 = 257.61 ft. x 1.5 = 386.42 ft.
36/16.5/2640 = .000826446 acres per ft. x 386.42 ft. = .32 acres
$20.00 per acre x .32 = $6.40
Additional costs will be incurred while other combines wait for 1 combine to clean up around a pole set. Also, combines need to be
run at capacity and will lose grain out the back of the machine when it is not fully loaded or comes to a stop according to the grain loss
monitor.

Approximately 2 acres around each pole set will have a reduction in yield due to over applied spray, fertilizer and compaction from the
additional traffic from the equipment. If the reduction is 30% on a 58 bushel per acre proven yield, the results are 17.4 bushels per acre.
17.4 x 2 acres x $4.00 per acre = $139.20 per pole set.

Total out of pocket costs of going around a pole 1.5 times plus the yield reduction:**$282.92**

Total out of pocket costs of going around a pole set 2.5 times plus the yield reduction: **$454.62**

These costs will be spread over a two (2) year period so the above figures will be divided by 2 to get an annual cost
of farming around a double pole set.

Annual cost of going around a pole 1.5 times: **$141.46**
Annual cost of going around a pole 2.5 times: **$227.31**

I suspect that it will take 2.5 loops around each pole set so as to NOT leave skips and to give the equipment enough room to get
back on the preceding line and lock on the GPS and auto steer. I don't have a difinitive answer at this time as we have just installed the
auto steer recently. I'll have a better idea in about a month after we spray around some existing double pole sets.

There are other factors that enter into farming around an above gound power line such as unlocking and locking the GPS autosteer
(functions on the equipment when you come to a pole set). There is also difficulty getting back on the pass without the use of a foam marker.
Another will involve the option of arial (sp) spraying when there are two double poled power lines running in parrallel about 200 ft. apart.

I suspect Arial Applicators may not want to spray fields with (2) diagonal power lines running through it for obvious reasons.

I am certainly not against power lines **if they run North/South, East/West following section lines**. Diagonal lines just create too much expense in todays farming environment. I would be willing to sign an easement for a line **if it followed section lines** for a reasonable fee, but, the diagonal lines are simply unacceptable.

Sincerely,

Brent MacDonald
President
Brent MacDonald, Inc.
1250 Anderson Road
Floweree, MT 59440-9012

Fertilizer costs have increased by 30% since this analysis was done in the summer of 2006 - so the costs will increase accordingly.

Model Overview

The methodology of the spreadsheet is based on professional assessment by Dr. Eric A. DeVuyst, Dean. A. Bangsund, and Dr. F. Larry Leistritz on how to find a reasonable estimate of the additional expense of having to farm around electrical towers in a crop field. The formulas and approach used in the model were not found in existing academic literature, although we cannot assume that a similar approach has not been used in other studies. Our approach may not be unique or novel.

The intent of the model is to use site-specific values and inputs, if available, to estimate the highest reasonable expectation for the cost to farm around electrical towers and guy wires. Costs are expected to vary based on the location or placement of the structure in the field. Towers located in the interior of the field require farming around the entire structure and so will cost more than those located on the field edge. The estimates in the model are considered conservative since the maximum amount of overlap, based on machinery size, is used in all field operations (both machinery cost and overlapped inputs). Further, the model assumes that complete crop failure occurs under the tire tracks of the sprayer when the sprayer drives over standing crop. Again, scientific evidence suggesting the actual (likely) amount or the relationship to yield loss associated with those actions could not be found. To be consistent, a worst case scenario (complete yield loss) was used.

The methodology has a number of assumptions. These assumptions include

1) operations are not discontinued when overlap begins–for example, the farmer does not shut off part of the sprayer as he sprays over areas that are considered overlap;

2) custom application rates are adequate to cover individual farmer's cost of application, which include machinery depreciation, power requirements (tractor fuel, depreciation on tractor), and operator labor;

3) estimations of the loss of productivity stemming from the 'footprint' of the towers is adequately covered by the easement settlement;

4) the existing crops grown and the lack of irrigation are continued into the foreseeable future. In other words, a new, high value, crop is not raised on the affected fields in the next several years.

The spreadsheet model is a work in progress and will not cover all situations encountered in the field. However, it is intended to be useful in a wide number of situations. If significantly different situations are encountered, modifications will be necessary.

MATL Spreadsheet Instructions

The purpose of this spreadsheet is to compute 1) yield loss associated with additional tire tracks and 2) additional costs associated with the overlapping of crop inputs from farming operations that have to maneuver around electrical tower bases. Throughout the spreadsheet, a conservative approach is used by assuming the maximum amount of overlap possible according to the farmer's machinery size.

The spreadsheet is comprised of five sheets. The tabs in the lower left corner, labeled INPUTS, AREA CALCULATIONS, COST CALCULATIONS, REVENUE LOSSES and TOTAL LOSS, direct the user to each section. Cells shaded turquoise are input cells and cells shaded yellow are calculated or fixed.

INPUTS

Start with the INPUTS sheet. All information enter here is carried through to the other sheets. First, enter the landowner's name and the field identification (such as legal description).

TABLE A. Structure Measurements and Number by Location

In Table A, three different pole configurations (1 pole, 2 pole and 3 pole) and 2 different guy wire configurations (1 wire and 3 wire) are allowed. Only 1-pole and 2-poles structures are allowed on the EDGE of the field or in the INTERIOR of the field. (An EDGE structure is too close to the field boundary to allow farming on all sides of the structure. An INTERIOR structure is distant enough from the field boundaries to allow farming on all sides of the structure.) All pole configurations are allowed in field CORNERs. Both 1-wire and 2-wire configurations are assumed to be in field CORNERs. (A CORNER structure is too close to two field boundaries to allow farming on two sides of the structure.)

For EDGE configurations, enter the distance from the field boundary to the farthest (from the boundary) edge of the poles. See FIGUREs 1-POLE EDGE FOOTPRINT and 2-POLE EDGE FOOTPRINT. Enter a safety margin if the farmer states a need for one. Also, enter the number of each type of EDGE structure.

For INTERIOR configurations, the distance from the outside edges of the tower(s). For example, a 1-pole structure may measure three feet across and a 2-pole structure may measure 23 feet from outside edge to outside edge of the poles. See FIGUREs 1-POLE INTERIOR FOOTPRINTand 2-INTERIOR FOOTPRINT.

CORNER configurations require more input. To allow for reasonable estimation of overlapped areas and nonplantable areas, it is necessary to assume a rectangular footprint for each corner configuration. Enter the farther point into the field from each boundary. These are entered as "width" and "length". Also, enter a safety margin if requested. Then, enter the number of each type of corner configuration. Last, enter the easement area for each type of CORNER structure in the field. (The easement area may be different than the footprint.) See FIGUREs 1-POLE CORNER FOOTPRINT, 2-POLE CORNER FOOTPRINT, 3-POLE CORNER FOOTPRINT, 1-

WIRE CORNER FOOTPRINT AND 3-WIRE CORNER FOOTPRINT.

TABLE B. Machinery Size and Custom Rates

In Table B, enter the farm's tillage, seeding, harvest, pesticide application and other relevant equipment used in actual field operations for the crops grown. Also, enter the width of each implement. Default widths can be over-written. Enter a custom rate for each implement/field operation. Again, a default set of values is included but can be over-written. The default values are from western ND and were taken from a North Dakota State University publication. The western ND rates were inflated by 20% above the published rate to account for recent increases in fuel prices.

Also, in Table B, enter the wheel base of the farm's crop sprayer and the width of the sprayer's tires. The model assumes that spraying operations are done with a self-propelled sprayer–if the farmer uses a tractor and pull-type sprayer, the model will need to be modified.

TABLE C. Crops, Yields and Rotation

In Table C, enter the crops grown on this *field*. DO NOT INCLUDE ANY CROPS GROWN ON THE FARM BUT NOT IN THIS FIELD. Enter the average (last few years) yield for each crop in this field. It is recommended that the APH yield from the farm's crop insurance forms be used. An estimate of the crop rotation as percent is needed for this *field*. The cropping history from the insurance forms can be of help. The rotation is entered as a percent. For example, if durum is raised about one out of four years, enter "25". Note FALLOW is treated as a crop for this spreadsheet. Other crops can be added.

TABLE D. Pesticides

Enter all pesticides used on the field for any crop. These include herbicides, insecticides (if any), and fungicides (if any). Enter the rate, the price per unit (such as per quart) and the unit (such as quart). Multiple rates for the same pesticide can be entered on separate lines. It is assumed that sprayers are not shut off on overlap areas.

TABLE E. Fertilizers

For each crop, enter the fertilizer rate and price.

TABLE F. Seeding

For each crop, enter seeding rate and price.

AREA CALCULATIONS

This sheet computes the area of overlap for each field operation listed in Table B and for each structure listed in TABLE A..

Diagrams 1-Pole or Wire Structures, Diagrams 2-Pole Structures, and Diagrams 3-Pole Structures

These sheets contain the diagrams referenced in TABLE A and throughout this manual.

TABLE G. Estimates of Overlap by Field Operation

Using the data entered on the INPUTS sheet, the area overlapped by each field operation is computed. For all INTERIOR structures, circular formulas are used. The area of a circle is computed as pi times radius squared (πR^2). A circle around each structure (the inner orange circles in Figures 1-POLE INTERIOR FOOTPRINT and 2-POLE INTERIOR FOOTPRINT) is assumed to be lost to production and not overlapped.

The outer circular area (shaded in blue in INTERIOR figures) is the computed area of overlap. The area of overlap will vary across field operations due to the different widths of implements. The overlap areas for edge of field structures are given as one-half the area in INTERIOR figures and are given in Figures 1-POLE INTERIOR OVERLAP and 2-POLE INTERIOR OVERLAP.

For EDGE structures, one-half of a circle with a diameter equal to the sum of the width of the structure and the safety margin is assumed to be non-overlap. (See Figures 1-POLE EDGE FOOTPRINT and 2-POLE EDGE FOOTPRINT.) Overlap area estimates for EDGE structures are shown in Figure 1-POLE EDGE OVERLAP and 2-POLE EDGE OVERLAP.

For CORNER structures, the non-overlap areas are shown in Figures 1-POLE CORNER OVERLAP, 2-POLE CORNER OVERLAP, 3-POLE CORNER OVERLAP, 1-WIRE CORNER OVERLAP, and 2-WIRE CORNER OVERLAP. Rectangular formulas are used to estimate overlapped areas. Areas assumed to not be planted are given in figures 1-POLE CORNER NONPLANT, 2-POLE CORNER NONPLANT, 3-POLE CORNER NONPLANT, 1-WIRE CORNER NONPLANT, and 2-WIRE CORNER NONPLANT.

TABLE H. Change in Quality

Table H is not used to compute economic loss and is presented for demonstration purposes. In Table H the change in grain quality due to overlapping of inputs is computed. Input cells are total acres in the field, yields, test weights, and protein levels. The affected acres are computed from the width of the air seeder. The model assumes that fertilizer is applied through the air seeder. If the producer broadcasts fertilizer, contact Jose as changes will need to be made to the formulas.

Providing reasonable values are entered in Table H, the potential economic effects of a change in the quality of malting barley from the placement of electrical towers will be negligible.

COST CALCULATIONS

Using the previously entered data and the number of trips/applications for each field operation, this sheet computes the costs associated with overlapping inputs–including both material costs and custom work rates for field operations.

Each crop –including FALLOW– that was entered on the INPUTS sheet has a separate table. NOTE: If a 0% area was enter for a crop's rotation percent in TABLE C, NO TABLE FOR COST CALCULATIONS WILL BE VIEWABLE OF THIS SHEET. Only Table I is discussed below, since the input requirements for the other crops are the same.

TABLE I. First Crop, Estimates of the Cost of Overlap

SPRING WHEAT

For each field operation, enter the number of times the operation is completed. The formula then uses the overlap calculations from the AREA CALCULATIONS sheet, the input prices and rates and the custom work rates from the INPUTS sheet. The resulting overlap costs are given PER FIELD.

REVENUE LOSS

This sheet computes losses associated with additional tire tracks, which are considered to drive over standing crop and result in complete yield loss under the tires. All tracks are considered to be due to spraying operations, since that is the only operation assumed to drive over standing crop, and it is assumed that no tracks would have been made around/through the field where the structure is located..

TABLE P. Yield loss due to tire tracks around towers

It assumed that each tire on the sprayer makes a unique track in the standing crop and that no yield is realized in each tire track. The circumference of each tire track (depending on its location relative to the tower) is computed as $2\pi R$ for INTERIOR structures. The radius R is computed based on the distance to the center of the circle using the width of the sprayer and the sprayer's wheel base. The area covered by each tire is equal to the distance it travels (circumference) times the tire width. For EDGE structures, a half circle is assumed. For CORNER structures, straight lines parallel to the field edges are assumed.

The economic value of yield loss is equal to the area covered by the tires ×yield×price. Areas are computed in the top of Table P and the yields used were reported on the INPUTS sheet. Prices are computed as a 10-year average of real (2006$) prices. Historical marketing-year average prices for MT (taken from Montana Agricultural Statistics Service and National Agricultural Statistics Service online data bases) are inflated to 2006$ using Producer Price Indices for wheats (spring, winter and durum) and barley (taken from US Bureau of Labor Statistics). For other crops, contact Jose as alternative data will need to be used.

The remaining tables on this sheet are the supporting price data and indices.

TABLE Q. Yield loss due to unfarmable areas around towers and guy wires

Some areas may be difficult to farm because of tight turns. These areas are shown in the figures as NON PLANT.

TOTAL LOSS

TABLE R. Total Losses

This sheet aggregates the losses from overlap and tire tracks. Losses for each crop are weighted by the crop rotation percentages and summed. No inputs are allowed on this page. The results are AVERAGE ANNUAL (or per year) losses and reported per field and per total number poles plus wires.

Appendix B
Farming Cost Sheets
Attachments DL-1 to 16

Attachment DL-1

Dryland Wheat-Fallow Rotation

Regular Span Mono-Pole at Field Edge (Layout A)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	123	0.003	$0.02
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	123	0.003	0.10
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	123	0.003	0.08
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	123	0.003	0.13
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	123	0.003	0.07
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	123	0.003	0.03
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	123	0.003	0.06
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	123	0.003	0.17
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	123	0.003	0.85
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	123	0.003	1.13
Labor & Equipment	$50	hour	0.25	hour	2	$25.00	25.00			25.00
TOTAL COST OF 2 YEAR ROTATION										**$27.63**
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE										**$13.81**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-2

Dryland Wheat-Fallow Rotation

Long Span Mono-Pole at Field Edge (Layout B)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	240	0.006	$0.04
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	240	0.006	0.20
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	240	0.006	0.15
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	240	0.006	0.25
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	240	0.006	0.13
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	240	0.006	0.06
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	240	0.006	0.11
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	240	0.006	0.33
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	240	0.006	1.65
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	240	0.006	2.20
Labor & Equipment	$50	hour	0.25	hour	2	$25.00	25.00			25.00
TOTAL COST OF 2 YEAR ROTATION										**$30.13**
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE AT FIELD EDGE										**$15.06**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-3

Dryland Wheat-Fallow Rotation

Regular Span Mono-Pole in Field Interior (Layout C)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	18,362	0.422	$2.95
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	50,328	1.155	41.56
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	50,328	1.155	31.20
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	13,854	0.318	14.47
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	13,854	0.318	7.38
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	50,328	1.155	13.42
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	5,597	0.128	2.57
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	50,328	1.155	69.32
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	144	0.003	0.99
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	144	0.003	1.32
Labor & Equipment	$50	hour	0.25	hour	2	$25.00				25.00
TOTAL COST PER POLE DURING 2 YEAR ROTATION										**$210.18**
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE IN FIELD INTERIOR										**$105.09**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-4

Dryland Wheat-Fallow Rotation

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	19,022	0.437	$3.06
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	51,459	1.181	42.49
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	51,459	1.181	31.90
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	14,420	0.331	15.06
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	14,420	0.331	7.68
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	51,459	1.181	13.72
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	5,937	0.136	2.73
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	51,459	1.181	70.88
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	214	0.005	1.47
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	214	0.005	1.97
Labor & Equipment	$50	hour	0.25	hour	2	$25.00	25.00	25.00		25.00
TOTAL COST PER POLE DURING 2 YEAR ROTATION										**$215.95**
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR										**$107.98**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-5

Dryland Wheat-Fallow Rotation

H-Poles Perpendicular to Field Edge (Layout E)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	1,136	0.026	$0.18
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	1,136	0.026	0.94
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	1,136	0.026	0.70
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	1,136	0.026	1.19
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	1,136	0.026	0.61
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	1,136	0.026	0.30
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	1,136	0.026	0.52
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	1,136	0.026	1.56
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	1,136	0.026	7.82
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	1136	0.026	10.43
Labor & Equipment	$50	hour	0.5	hour	2	$50.00	50.00			50.00
TOTAL COST OF 2 YEAR ROTATION										**$74.26**
ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE										**$37.13**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-6

Dryland Wheat-Fallow Rotation

H-Poles Perpendicular to Field Edge & Splitting Property Line (Layout F)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	420	0.010	$0.07
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	420	0.010	0.35
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	420	0.010	0.26
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	420	0.010	0.44
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	420	0.010	0.22
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	420	0.010	0.11
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	420	0.010	0.19
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	420	0.010	0.58
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	420	0.010	2.89
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	420	0.010	3.86
Labor & Equipment	$50	hour	0.33	hour	2	$33.00	33.00			33.00
TOTAL COST OF 2 YEAR ROTATION										**$41.97**

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE & SPLITTING PROPERTY LINE **$20.98**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-7

Dryland Wheat-Fallow Rotation

H-Poles Parallel to Field Edge (Layout G)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	233	0.005	$0.04
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	233	0.005	0.19
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	233	0.005	0.14
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	233	0.005	0.24
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	233	0.005	0.12
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	233	0.005	0.06
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	233	0.005	0.11
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	233	0.005	0.32
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	233	0.005	1.60
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	233	0.005	2.14
Labor & Equipment	$50	hour	0.25	hour	2	$25.00	25.00			25.00
TOTAL COST OF 2 YEAR ROTATION										**$29.98**
ANNUAL COST OF FARMING AROUND H-POLES PARALLEL TO FIELD EDGE										**$14.99**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-8

Dryland Wheat-Fallow Rotation

H-Pole in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft^2	Overlap Acres	Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	21,052	0.483	$3.38
Chemical Fallow:										
Roundup (RT3)	$21.50	gallon	16	ounce	4	$10.75				
Dicamba	$71.00	gallon	4	ounce	1	2.22				
Ammonium sulfate	$6.00	gallon	16	ounce	4	3.00				
Application	$5.00	acre			4	20.00	35.97	54,940	1.261	45.37
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	54,940	1.261	34.05
Fertilizer:										
Banded w/ Seed	$450	ton	60	pound	1	$13.50				
Topdress N	$450	ton	120	pound	1	27.00				
Topdress App	$5.00	acre			1	5.00	45.50	16,160	0.371	16.88
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	16,160	0.371	8.61
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	54,940	1.261	14.65
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	6,982	0.160	3.21
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	50	bushel	20%	$60.00	60.00	54,940	1.261	75.67
Pole Footprint	$6.00	bushel	50	bushel		$300.00	300.00	393	0.009	2.71
Weed Control Around Pole:										
Herbicide	$200	acre			2	$400.00	400.00	393	0.009	3.61
Labor & Equipment	$50	hour	0.33	hour	2	$33.00	33.00			33.00
TOTAL COST PER POLE DURING 2 YEAR ROTATION										**$241.14**
ANNUAL COST OF FARMING AROUND H-POLE IN FIELD INTERIOR										**$120.57**

Estimated Spring Wheat Yield: 50 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 61 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-9

Dryland Continuous Crop Rotation

Regular Span Mono-Pole at Field Edge (Layout A)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	123	0.003	$0.02
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	123	0.003	0.05
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	123	0.003	0.08
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	123	0.003	0.15
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	123	0.003	0.07
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	123	0.003	0.03
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	123	0.003	0.06
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	123	0.003	0.12
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	123	0.003	0.59
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	123	0.003	0.56
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE										**$14.22**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-10

Dryland Continuous Crop Rotation

Long Span Mono-Pole at Field Edge (Layout B)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	240	0.006	$0.04
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	240	0.006	0.09
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	240	0.006	0.15
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	240	0.006	0.29
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	240	0.006	0.13
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	240	0.006	0.06
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	240	0.006	0.11
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	240	0.006	0.23
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	240	0.006	1.16
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	240	0.006	1.10
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE AT FIELD EDGE										**$15.86**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-11

Dryland Continuous Crop Rotation

Regular Span Mono-Pole in Field Interior (Layout C)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	18,362	0.422	$2.95
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	50,328	1.155	19.50
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	50,328	1.155	31.20
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	13,854	0.318	16.62
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	13,854	0.318	7.38
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	50,328	1.155	13.42
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	5,597	0.128	2.57
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	50,328	1.155	48.53
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	144	0.003	0.69
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	144	0.003	0.66
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE IN FIELD INTERIOR										**$156.01**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-12

Dryland Continuous Crop Rotation

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	19,022	0.437	$3.06
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	51,459	1.181	19.94
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	51,459	1.181	31.90
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	14,420	0.331	17.30
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	14,420	0.331	7.68
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	51,459	1.181	13.72
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	5,937	0.136	2.73
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	51,459	1.181	49.62
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	214	0.005	1.03
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	214	0.005	0.98
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR										**$160.44**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-13

Dryland Continuous Crop Rotation

H-Poles Perpendicular to Field Edge (Layout E)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	1,136	0.026	$0.18
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	1,136	0.026	0.44
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	1,136	0.026	0.70
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	1,136	0.026	1.36
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	1,136	0.026	0.61
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	1,136	0.026	0.30
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	1,136	0.026	0.52
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	1,136	0.026	1.10
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	1,136	0.026	5.48
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	1136	0.026	5.22
Labor & Equipment	$50	hour	0.5	hour	1	$25.00	25.00			25.00
ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE										**$40.91**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-14

Dryland Continuous Crop Rotation

H-Poles Perpendicular to Field Edge & Splitting Property Line (Layout F)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	420	0.010	$0.07
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	420	0.010	0.16
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	420	0.010	0.26
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	420	0.010	0.50
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	420	0.010	0.22
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	420	0.010	0.11
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	420	0.010	0.19
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	420	0.010	0.40
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	420	0.010	2.02
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	420	0.010	1.93
Labor & Equipment	$50	hour	0.33	hour	1	$16.50	16.50			16.50

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE & SPLITTING PROPERTY LINE **$22.38**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-15

Dryland Continuous Crop Rotation

H-Poles Parallel to Field Edge (Layout G)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	233	0.005	$0.04
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	233	0.005	0.09
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	233	0.005	0.14
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	233	0.005	0.28
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	233	0.005	0.12
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	233	0.005	0.06
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	233	0.005	0.11
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	233	0.005	0.22
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	233	0.005	1.12
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	233	0.005	1.07
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND H-POLES PARALLEL TO FIELD EDGE										**$15.76**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Attachment DL-16

Dryland Continuous Crop Rotation

H-Poles in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$7.00	acre			1	$7.00	$7.00	21,052	0.483	$3.38
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	2	$5.38				
Ammonium sulfate	$6.00	gallon	16	ounce	2	1.50				
Application	$5.00	acre			2	10.00	16.88	54,940	1.261	21.28
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	54,940	1.261	34.05
Fertilizer:										
Banded w/ Seed[1]	$450	ton	60	pound	1	$13.50				
Topdress N[2]	$450	ton	150	pound	1	33.75				
Topdress App	$5	acre			1	5.00	52.25	16,160	0.371	19.38
Planting:										
Seed	$16.00	cwt	70	pound	1	$11.20				
Seeding	$12.00	acre			1	12.00	23.20	16,160	0.371	8.61
In Crop Spraying:										
Affinity Broad Spectrum	$9.25	ounce	0.6	ounce	1	$5.55				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	11.62	54,940	1.261	14.65
Harvesting:										
Combine	$20.00	acre			1	$20.00	20.00	6,982	0.160	3.21
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	35	bushel	20%	$42.00	42.00	54,940	1.261	52.97
Pole Footprint	$6.00	bushel	35	bushel		$210.00	210.00	393	0.009	1.89
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	393	0.009	1.80
Labor & Equipment	$50	hour	0.33	hour	1	$16.50	16.50			16.50
ANNUAL COST OF FARMING AROUND H-POLES IN FIELD INTERIOR										**$177.74**

Estimated Spring Wheat Yield: 35 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 75 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07.

Appendix C
Farming Cost Sheet
Attachments IRR-1 to 8

Attachment IRR-1

Irrigated Farming

Regular Span Mono-Pole at Field Edge (Layout A)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	123	0.003	$0.07
Toobar	$10.00	acre			2	20.00	20.00	123	0.003	0.06
Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	123	0.003	0.02
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	123	0.003	0.08
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	123	0.003	0.35
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	123	0.003	0.08
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	123	0.003	0.04
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	123	0.003	0.08
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	123	0.003	0.30
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	123	0.003	1.52
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	123	0.003	0.56
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE										**$15.60**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-2

Irrigated Farming

Long Span Mono-Pole at Field Edge (Layout B)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	240	0.006	$0.14
Toobar	$10.00	acre			2	20.00	20.00	240	0.006	0.11
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	240	0.006	0.05
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	240	0.006	0.15
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	240	0.006	0.67
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	240	0.006	0.17
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	240	0.006	0.08
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	240	0.006	0.15
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	240	0.006	0.60
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	240	0.006	2.98
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	240	0.006	1.10
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE AT FIELD EDGE										**$18.69**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-3

Irrigated Farming

Regular Span Mono-Pole in Field Interior (Layout C)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	5,597	0.128	$3.34
Toobar	$10.00	acre			2	20.00	20.00	13,854	0.318	6.36
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	50,328	1.155	9.75
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	50,328	1.155	31.20
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	13,854	0.318	38.90
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	13,854	0.318	9.54
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	50,328	1.155	16.25
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	5,597	0.128	3.60
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	50,328	1.155	124.78
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	144	0.003	1.79
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	144	0.003	0.66
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE IN FIELD INTERIOR										**$258.67**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-4

Irrigated Farming

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	5,937	0.136	$3.54
Toobar	$10.00	acre			2	20.00	20.00	14,420	0.331	6.62
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	51,459	1.181	9.97
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	51,459	1.181	31.90
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	14,420	0.331	40.49
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	14,420	0.331	9.93
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	51,459	1.181	16.62
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	5,937	0.136	3.82
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	51,459	1.181	127.58
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	214	0.005	2.65
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	214	0.005	0.98
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR										**$266.61**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-5

Irrigated Farming

H-Poles Perpendicular to Field Edge (Layout E)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	1,136	0.026	$0.68
Toobar	$10.00	acre			2	20.00	20.00	1,136	0.026	0.52
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	1,136	0.026	0.22
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	1,136	0.026	0.70
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	1,136	0.026	3.19
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	1,136	0.026	0.78
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	1,136	0.026	0.37
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	1,136	0.026	0.73
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	1,136	0.026	2.82
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	1,136	0.026	14.08
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	1136	0.026	5.22
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE										**$41.81**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-6

Irrigated Farming

H-Poles Perpendicular to Field Edge & Splitting Property Line (Layout F)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	420	0.010	$0.25
Toobar	$10.00	acre			2	20.00	20.00	420	0.010	0.19
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	420	0.010	0.08
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	420	0.010	0.26
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	420	0.010	1.18
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	420	0.010	0.29
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	420	0.010	0.14
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	420	0.010	0.27
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	420	0.010	1.04
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	420	0.010	5.21
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	420	0.010	1.93
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE & SPLITTING PROPERTY LINE **$23.34**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-7

Irrigated Farming

H-Poles Parallel to Field Edge (Layout G)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	233	0.005	$0.14
Toobar	$10.00	acre			2	20.00	20.00	233	0.005	0.11
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	233	0.005	0.05
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	233	0.005	0.14
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	233	0.005	0.65
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	233	0.005	0.16
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	233	0.005	0.08
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	233	0.005	0.15
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	233	0.005	0.58
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	233	0.005	2.89
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	233	0.005	1.07
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND H-POLES PARALLEL TO FIELD EDGE										**$18.51**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.

Attachment IRR-8

Irrigated Farming

H-Poles in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$13.00	acre			2	$26.00	$26.00	6,982	0.160	$4.17
Toobar	$10.00	acre			2	20.00	20.00	16,160	0.371	7.42
Post Harvest/Preplant Spraying										
Roundup (RT3)	$21.50	gallon	16	ounce	1	$2.69				
Ammonium sulfate	$6.00	gallon	16	ounce	1	0.75				
Application	$5.00	acre			1	5.00	8.44	54,940	1.261	10.64
Wildoat Control:										
Fargo	$1.00	pound	15	pound	1	$15.00				
Application	$5.00	acre			1	5.00				
Incorp w/ Heavy Harrow	$7.00	acre			1	7.00	27.00	54,940	1.261	34.05
Fertilizer:										
Banded w/ Seed[1]	$450	ton	80	pound	1	$18.00				
Topdress N[2]	$450	ton	437	pound	1	98.33				
Topdress App	$6	acre			1	6.00	122.33	16,160	0.371	45.38
Planting:										
Seed	$16.00	cwt	100	pound	1	$16.00				
Seeding	$14.00	acre			1	14.00	30.00	16,160	0.371	11.13
In Crop Spraying:										
Harmony Extra	$16.00	ounce	0.5	ounce	1	$8.00				
LV-6 (2,4-D)	$20.00	gallon	6	ounce	1	0.94				
Surfactant	$16.50	gallon	1	ounce	1	0.13				
Application	$5.00	acre			1	5.00	14.07	54,940	1.261	17.74
Harvesting:										
Combine	$28.00	acre			1	$28.00	28.00	6,982	0.160	4.49
Crop Loss:										
Quality/Quanity in Overlap	$6.00	bushel	90	bushel	20%	$108.00	108.00	54,940	1.261	136.21
Pole Footprint	$6.00	bushel	90	bushel		$540.00	540.00	393	0.009	4.87
Weed Control Around Pole:										
Herbicide	$200	acre			1	$200.00	200.00	393	0.009	1.80
Labor & Equipment	$50	hour	0.25	hour	1	$12.50	12.50			12.50
ANNUAL COST OF FARMING AROUND H-POLES IN FIELD INTERIOR										**$290.41**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 210 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07.



Farming Cost Review - Revised Report
Montana-Alberta Tie Ltd.

Submitted to:
Environmental Management Bureau
Montana Department of Environmental Quality

Prepared Under:
State of Montana Environmental Services Term Contract (SPB06-81195O-G)
Task Order #02-CII



Prepared by:
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June 4, 2008

June 4, 2008

Mr. Tom Ring
Environmental Management Bureau
Montana Department of Environmental Quality
PO Box 200901
1520 East Sixth Avenue
Helena, Montana 59620-0901

RE: Farming Cost Review - Revised Report Montana-Alberta Tie Ltd.
DEQ Contract #SPB06-81195O-G Task Order #02-CII

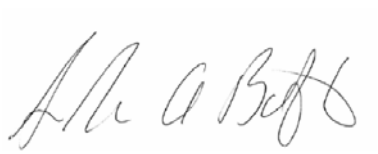
Dear Mr. Ring:

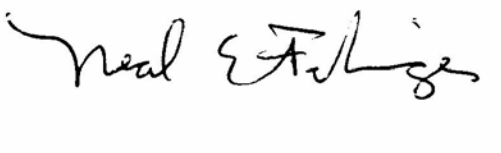
HydroSolutions Inc and Fehringer Agricultural Consulting, Inc., is pleased to provide this Farming Cost Review Revised Report for the Montana-Alberta Tie Ltd. presented under the State of Montana Environmental Services Term Contract (SPB06-81195O-G) for Task Order #02-CII to the Montana Department of Environmental Quality (MDEQ).

A report outlining objective and results of this revised review are attached. The revised report presents the findings of a revised annual cost to farming of transmission structures in their crop fields. The review was based on the use of most recent data available and realistic assumptions with respect to the extra work, inputs, yields and time needed by farmers, and was representative of farming in the Great Falls to Cut Bank, Montana area. Please refer to the attached report for specific details.

It has been a pleasure completing this review and look forward to working with you again in the future. If you have any questions, please contact us at (406) 655-9555.

Sincerely,





Shane A. Bofto
Senior Engineer
HydroSolutions Inc

Neal E. Fehringer
Certified Professional Agronomist, C.C.A.
Fehringer Agricultural Consulting, Inc.

Attachment: Farming Cost Review - Revised Report – Montana-Alberta Tie Ltd.

HydroSolutions Inc

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Executive Summary

This report presents a revised, detailed cost estimate of farming around transmission line structures to a 'representative farmer' in the Conrad, Montana area. As a result of the review, estimated ranges of reasonable values for the annual cost to farmers of transmission structures in their crop fields were made. Updated costs were used to revise the original July 2007 cost estimates.

The revised analysis presented used likely transition areas and safety buffers around the pole(s) for the proposed structure types, orientation to the field and location in the field. A representative farmer was chosen to be either dryland or irrigated, where the dryland farmer grew spring wheat in fallow rotations as well as continuous crop spring wheat. Spring wheat was used because it had the highest value and expenses of crops grown in the in the proposed area. The irrigated farmer would also grow spring wheat for the same reasons listed above.

The results indicated that long-span 6.5-foot diameter mono-poles at the field edges would cost the least to farm around on an overall basis which considers multiple structures within the field. The long-span mono-pole layout would have a larger footprint than the short-span, but would have fewer structures to farm around per mile. On an individual structure basis, the 3.5-foot diameter mono-pole structure at the field edge would be the least cost to farm around.

A. Introduction

HydroSolutions Inc (HydroSolutions) is pleased to present this revised report in accordance with the Scope of Service for the Limited Solicitation for Farming Cost Review – Revised Report, Environmental Permit Preparation, Analysis and Assistance Services Term Contract, Contract # SPB06-81195O-G, Task Order # 02-CII, approved by the Montana Department of Environmental Quality (MDEQ) on May 16, 2008.

On April 18, 2008 the Montana Department of Environmental Quality issued a limited solicitation for a firm to complete the Scope of Services described therein. The Federal Draft Environmental Impact Statement and State of Montana Supplemental Draft Environmental Impact Statement for the Montana-Alberta Tie Ltd. (MATL) 230-kV Transmission Line (EIS) was published in February 2008. Comments received on the final report and the farmer cost portion of the EIS indicated that farmer input costs and crop prices have risen substantially and as a result, a revision to the original farming cost review was requested. Following the submittal of the report, assistance to the DEQ in responding to public moments on the Federal Draft Environmental Impact Statement and State of Montana Supplemental Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (EIS) published in February 2008, will be provided.

This scope of service was completed by HydroSolutions and Fehringer Agricultural Consulting, Inc. (Fehringer), an agronomic consulting firm.

B. Background

In May 2007, the MDEQ contracted for a study to estimate a range of annual costs to farmers for transmission structures located in and along their crop fields. Since the report was submitted, farming costs and crop prices have risen substantially. In response, the MDEQ requested a revision to the previous cost estimates outline in the July 12, 2007 DEQ Farming Review Report prepared by HydroSolutions and Fehringer. The information in this revision will be used with other information in the MDEQ's decision process whether to grant, deny or grant with conditions a certificate of compliance under Montana's Major Facility Siting Act.

C. Scope and Methods

The scope included the revision of the July 12, 2007 Farming Review Report that estimated the costs to farmers of operating around electricity transmission line structure, based on an independent estimate of such costs to a 'representative farmer' in Conrad, Montana area. The cost estimate incorporated farmer input costs and crop prices that have risen substantially. A reasonable range of annual estimated costs to farmers were made due to the structures in their crop fields. The analysis and report was conservative in favor of farmers and used most recent date, realistic assumptions and was to be representative of farmers in the Great Falls to Cut Bank, Montana area.

HydroSolutions and Fehringer reviewed and compiled representative information and provided estimates of cost impacts to farmers as a result of power line structures placed in agricultural fields located from Great Falls to Cut Bank, Montana. Farming expenses reflect 2008 costs and included the following: prices for fuel, chemical and crop prices, modern machinery capabilities to maneuver around structures, time and labor cost. The estimates were tailored in a conservative direction towards the farmers.

Two 'representative farmer' scenarios were created to accurately represent dry land and irrigated farming practices in the Great Falls to Cut Bank, Montana area. Items of focus included farming practices, size of machinery used, typical acreages farmed, typical crops and yields, and other regional characteristics. The cost values developed were applied to the chosen 'representative farmer' to develop a range of reasonable values for the annual cost to farmers per transmission structure for each of the structures that will be possibly used in their crop fields. The presence of these structures may result in both lost crop production from the structure footprint and overlapping of tillage and inputs as well as increased labor costs.

Several scenarios were addressed including two configurations, Mono-pole (both short-span and long-span) and H-frame, along with location of the power poles, to include edge or interior. As required in the solicitation, farming techniques using auto steer and GPS were of particular consideration.

D. Revised Analysis

Based on the review of previous July 12, 2007 Farming Cost Review Report, current prices, operations in the area of the 'representative' farmer scenario, and the MATL DEIS, a revised analysis is presented below.

D.1. Pole Layouts

A range of most frequently encountered specific pole layouts were evaluated and are presented on Figure 1, Pole Configuration Footprint Layouts. These areas represent the portion of land adjacent to the pole(s) that would not be farmed due to impedance to the farming implements resulting in the portion of land that is taken out of production. Power poles were in two structure types, Mono-pole and H-pole. Mono-poles consisted of a 3.5-foot diameter pole (short-span) or 6.5-foot (long-span) wide concrete foundation, and an H-hole, which consisted of two 3-foot diameter poles spaced 20 feet apart at the centers or 23 feet apart at each outside diameter.

Mono-poles were either located at the edge of the field (Layouts A & B) or in the interior (Layouts C & D). H-poles were oriented either perpendicular with, and at the edge of the field Layout E), perpendicular with, and at the edge of the field and straddling the fence line (Layout F), parallel with, and at the edge of the field (Layout G), and interior (Layout H).

A safety buffer of 5 feet was used around the outside diameters of each pole to assess footprint areas around each structure, location and orientation using conventional farming techniques. The safety buffer is generally dependent upon the specific field, equipment and operator experience, but in this case a 5-foot safety buffer should be adequate to safely clear the pole(s) using typical equipment while still optimizing farmed area.

These footprint areas also consider transition lengths used to navigate farming equipment around the structure located along the edge to maintain the 5-foot safety buffer and return to the previously established row track. These transition lengths include an approximate 1.3:1 (transition length to diversion) transition length for the edge pole(s) diversion (A, B, E, F). These transition lengths are used for pole(s) locations on field edges. For H-poles located parallel and adjacent to the property line (G), a 1:1 transition length was used due to its longer parallel

section and flatter transition along the parallel poles adjacent to the property line. This transition does not require the implement to swing out as far as the other edge layouts. Please refer to Table 1 for estimated footprint areas.

D.2. Representative Farmer

This analysis was based on the 'representative farmer' scenarios which represent dry land and irrigated farming practices in the Great Falls to Cut Bank, Montana area. Costs used in the analysis reflect up-to-date information by using current 2008 prices. Fertilizer prices were obtained from Agri-Basics in Great Falls, CHS in Conrad, Montana Plant Food in Conrad, and Mountain View Coop in Brady (Personal Communications, May 2008). Herbicide costs were taken from Wilbur-Ellis' 2008 Price List and reflect highest retail cost (Wilbur-Ellis 2008).

A typical dry land field was chosen to grow spring wheat in fallow rotation as well as continuous crop spring wheat. Spring wheat was used because it has the highest value of crops grown in the proposed area. Currently, spring wheat is trading at near $10.50 per bushel. Spring wheat has traded from $5.00 to $20.00 per bushel. For this revised cost estimate, $12.00 per bushel was used as the value. Spring wheat prices could easily reach $12.00 per bushel again if there is much of a reduction in wheat yields. Winter wheat is worth about $8.50 per bushel, and it will generally yield more than spring wheat but the gross per acre will be more with spring wheat. Winter wheat is not a crop that survives winters consistently in the Cut Bank, Montana area. Malt barley is approximately $6.00 per bushel and will yield more than spring wheat, but spring wheat will still gross more per acre. In addition, spring wheat requires more fertilizer per acre, particularly nitrogen, than winter wheat, durum, canola, and malt barley. In summary, spring wheat was used because it is the highest valued per acre crop, has the highest inputs per acre, and can be grown in all parts of the proposed area. If a farmer chooses to plant something other than spring wheat, the cost of farming around the poles would be less. Spring wheat provided the worst case scenario from the farmer's perspective.

For dry land crop production, both wheat-fallow rotation and continuous crop farming were evaluated because both practices are used in this area. Many farmers will flex crop, which is recropping a field when enough stored soil moisture is present at planting time to assure a profitable yield. If stored soil moisture is below average, the farmer then chooses to fallow.

A typical irrigated field was chosen to also grow spring wheat for the same reasons listed in the dry land section above. Irrigated malt barley generally has been a more profitable crop than spring, winter wheat, canola, etc., but at the time of this evaluation, spring wheat had surpassed malt barley. Again, using spring wheat for the irrigated crop provided the worst case scenario.

D.3. Row Layout

The row layout was applicable to farming equipment with GPS and auto-steer. Please refer to Figure 1 for specific pole layouts.

D.3.a. Layouts A, B, E, F and G

These layouts represent pole(s) locations at the edge of a field. It was assumed that the farmer would not be able to use auto-steer on the initial pass on the field edge containing poles. In this analysis, ample transition space was created to easily farm around the pole. On the second pass, the farmer would establish the AB line for auto-steer or GPS light bar guidance. The transition varied with the type of structure, location and orientation, but always included a 5-foot safety buffer.

D.3.b. Layouts C, D, and H

Interior Mono-pole or H-poles orientation assumed that the farmer would approach the pole(s), turn off the auto-steer, and divert either left or right while maintaining the 5-foot safety buffer. Upon reaching the other side of the pole(s), the tractor and implement would continue around the pole(s) to make an additional 360 degrees and then return to using auto-steer and following the previously established row track. Farming around the pole(s) involved only one lap around the pole not 1.5 to 2.5 extra revolutions as listed in the Denzer and MacDonald studies outlined in the original July 2007 report.

D.4. Overlap

Using the footprint areas, overlaps of farming rows were calculated using standard implement widths for harrowing, discing, toolbarring, chemical spraying, “Fargo” (wild oat control) application, fertilizer application, seeding, and combining. Revised implement widths are presented in Table 1. Some implement widths were adjusted to reflect increased machinery

size that is typical for the Great Falls to Cut Bank, Montana farming area, as indicated by the Denzer and MacDonald studies referenced above. Using the footprint areas and implement widths, overlaps were calculated for each pole configuration and orientation using the selected implements for each specific process.

The overlap areas were calculated by adding the footprint areas for the pole(s) at the edge of the field to the implement width chosen. This would account for the implement moving out and around the pole(s) footprint on the first pass, moving into the adjacent row path and overlapping the width of the footprint. The overlap for the interior structures assumed a 360 degree path around the pole(s) footprint, which includes the 5-foot safety buffer, with the selected implement width added.

D.5. Estimated Costs

Cost for labor, materials, and equipment were estimated from various sources including custom farming and application rates (University of Wyoming “Custom Rates for Wyoming Farm and Ranch Operations, 2004-2006” and Personal Communications, Agri-Basics, CHS, Montana Plant Food, and Mountain View Coop, respectively) site specific vendor information, and personal communications with regional farmers. Farming rates have been increased to reflect the increase of red dyed diesel from $2.50 per gallon in June 2007 to nearly $4.25 at the time of this evaluation. Another adjustment to the cost of operations has been made for having slow down to go around the pole(s) with larger equipment. All farming/application costs were considered 150% of normal rates for operations without obstructions. Provided below is a brief description of the various farming operations anticipated for the Great Falls to Cut Bank area. The information is reflected on Attachments DL-1 to 16 and IRR-1 to 8 found in Appendix A and B, respectively.

Many dry land farmers heavy harrow to incorporate seeds after harvest so that they germinate more uniformly, especially in drier years. Harrowing also distributes crop residue if it did not get uniformly spread behind the combine. Heavy residue rows can cause disease problem, especially when continuous cropping.

Irrigated farmers will most likely disc their fields one to two times after harvest and toolbar it one to two times before planting. For this analysis, two of each of these operations has been included.

Fallow and preplanting sprayings listed represents the highest number of applications needed per year. A farmer may have fewer applications than listed. Herbicide rates are typical for this type of spraying. In addition to the glyphosate ("Roundup") for first fallow application, dicamba ("Banvel") was added to the mix as this would be the ideal mixture but would cost more per acre than if "Roundup" only was applied. The addition of dicamba would provide extended broadleaf weed control and is a prudent practice to reduce the risk of creating "Roundup" resistance in the weeds. For preplant spraying, only "Roundup" was applied for both dry land and irrigated fields.

With regard to wild oat control, triallate ("Fargo") application at 15 pounds per acre was used because this is the most expensive method of controlling this weed. It requires a separate application and harrow incorporation. If a grower uses a post-emergent herbicide that can be tank mixed with the broadleaf weed herbicides, then there was only one application of herbicides to the field, not two and no incorporation with a harrow. Lastly, 15 pounds per acre of "Fargo" was the rate used for barley and winter wheat. Ten to twelve and one-half pounds per acre is the labeled rate on spring wheat. Again, all inputs were designed to be a worst case scenario.

Prices used for fertilizer reflected the cost spike that occurred from summer 2007 to spring 2008. Phosphate fertilizers (11-52-0, and 18-46-0) have increased from $450 per ton in June 2007 to $1,205 per ton in May 2008. For this revision, $1,300 per ton was used to allow for inflation. Urea (46-0-0) had gone from $450 per ton to $750 per ton during the same time period. $800 per ton is used for this evaluation. For dry land crops, fertilizer banded with the seed was 75 pounds per acre of 11-52-0 or 18-46-0 for fallow wheat and 60 pounds per acre for continuous crop wheat. Total nitrogen for both fallow and continuous crop wheat was figured at 100 actual units (pounds) of nitrogen per acre. Nitrogen comes from 11-52-0 (or 18-46-0) banded with the seed and urea. These amounts of nutrients would be adequate for a spring wheat-fallow rotation yield goal of 60 bushels per acre. For irrigated spring wheat, 90 pounds of 11-52-0 was banded with the seed. Nitrogen applied for a 90 bushel per acre yield goal was a total of 230 pounds per acre. Total nitrogen and phosphate rates were increased in response to

grower comments to DEQ. Crop yields listed are also from Fehringer's personal knowledge from production in the area and Montana Agricultural Statistics website (USDA, 2007).

Wheat required three pounds of nitrogen per bushel. However, fertilizer nitrogen is not the only source for plants. Organic matter releases nitrogen during the fallow and growing seasons. Lastly, soil contains nitrogen even after a crop. For 60 bushels per acre wheat, the gross amount of nitrogen required would be 180 pounds, but between nitrogen in the soil profile and organic matter release, only 100 actual pounds of nitrogen was projected to be applied. This has been confirmed by personal communication with growers in the area.

Seeding rate was figured at 70 pounds per acre for dry land and 100 pounds per acre for irrigated land. The price used was for certified seed that was cleaned and treated.

Herbicides listed for in-crop spraying to control broadleaf weeds are the more expensive ones available. Herbicides used have only a 60 day plant back restriction so any crop can be planted the next growing season.

Harvesting expense was calculated at custom rates and reflects the increase price of combines, parts, and fuel. Overlap was figured for combining even though custom harvesters charge by the acre and what the crop is yielding. They do not have a surcharge for cutting around obstructions.

Crop loss due to overlap was figured at 20% of the yield goal. Yield loss would be from reduced yield and/or quality (test weight, protein, etc.). Yield loss for edge poles would be only the footprint area shown for Layouts A, B, E, F, and G. Yield loss for poles in the field interior was much larger because of having to overlap for one revolution around the pole(s) (Figures C, D, H). The amount of area used was figured by taking the largest implements listed in Table 1, which are sprayer and "Fargo" applicator.
Harrowing, toolbarring, discing, fertilizer application, seeding, and harvesting are all smaller equipment, but again, the worst case situation was used. Crop spraying and "Fargo" application would result in the largest yield loss due to double applying herbicides. Double application would cause the most crop stress. In addition to the reduced yields from overlap, farmers would

not have the area of the structure footprint in crop any longer. The foot print areas for each pole situation are shown in Table 1.

Weed control in the pole footprint was also addressed. The best option was to establish grass in the footprint area. However, this might present a fire danger that MATL does not want. In lieu of having grass established, total vegetation control would be the next best option. Again in response to grower feedback, projected weed control was changed. In wheat-fallow rotation, Roundup was applied three times during the fallow period, Maverick (cheatgrass and mustard herbicide) was applied in the fall after the fallow season, and then in-crop herbicides was applied during the cropping season. This required five total herbicide applications every two year cycle. The time per structure was based on the square footage involved. In many cases, it would take about as much time to drive from pole to pole as it would to apply the herbicide. Time listed for each pole configuration included both application and travel time. For continuous crop and irrigated farming, one each of Roundup, Maverick, and in-crop herbicide application was projected to occur. Farming Cost Sheets for each dry land and irrigated scenarios are included in Appendix A and B, respectively.

D.6. Results

The revised analysis included dry land with a spring wheat-fallow two year crop rotation and continuous cropping spring wheat. Irrigated land included raising continuous spring wheat. Each layout was considered in the evaluation. Results of the revised analysis for dry land and irrigated farming are summarized in Tables 2 and 3, respectively. For MATL and the growers, structures at field edges would cost less to farm around than interior poles.

The results indicated that long-span 6.5-foot diameter mono-poles at the field edges would cost the least to farm around on an overall basis which considers multiple structures within the field. The long-span mono-pole layout would have a larger footprint than the short-span, but would

have fewer structures to farm around per mile. On an individual structure basis, the 3.5-foot diameter mono-pole structure at the field edge would be the least cost to farm around.

All care should be taken to not place structures in a sprinkler irrigated field due to the additional costs of having to break apart a wheel line to move it past a pole(s) and the cost of disrupting a pivot from making a complete revolution. Those costs were not addressed in the alternate analysis because each field would have a unique situation to calculate. Pole(s) in flood irrigated fields would have additional costs beyond overlap costs. Again, cost depends upon its location in the field, top, middle, or bottom of field. Structures at the top of the field would result in less crop watered down slope than crop located in the in the middle or bottom of the field. Cost of interior pole(s) would also be influenced by the length the water had to travel. Poles should be placed at field edge or at least 200 feet from field edge. With sprayers and Fargo applicators being already 134 foot, 200 foot applicator is not too far off. If poles were placed less than 200 feet, then a substantial amount of overlap and outage would occur behind the pole once application equipment got to be that size.

E. Standard of Care

Services performed by HSI personnel for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession, currently practicing in this area under similar budget and time restraints. No warranty, expressed or implied, is made.

F. References

Agri-Basics, Great Falls; CHS and Montana Plant Food, Conrad; and Mountain View Coop, Brady. (2008). Personal communication May 2008.

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Figure 1

Pole Configuration Footprint Layouts

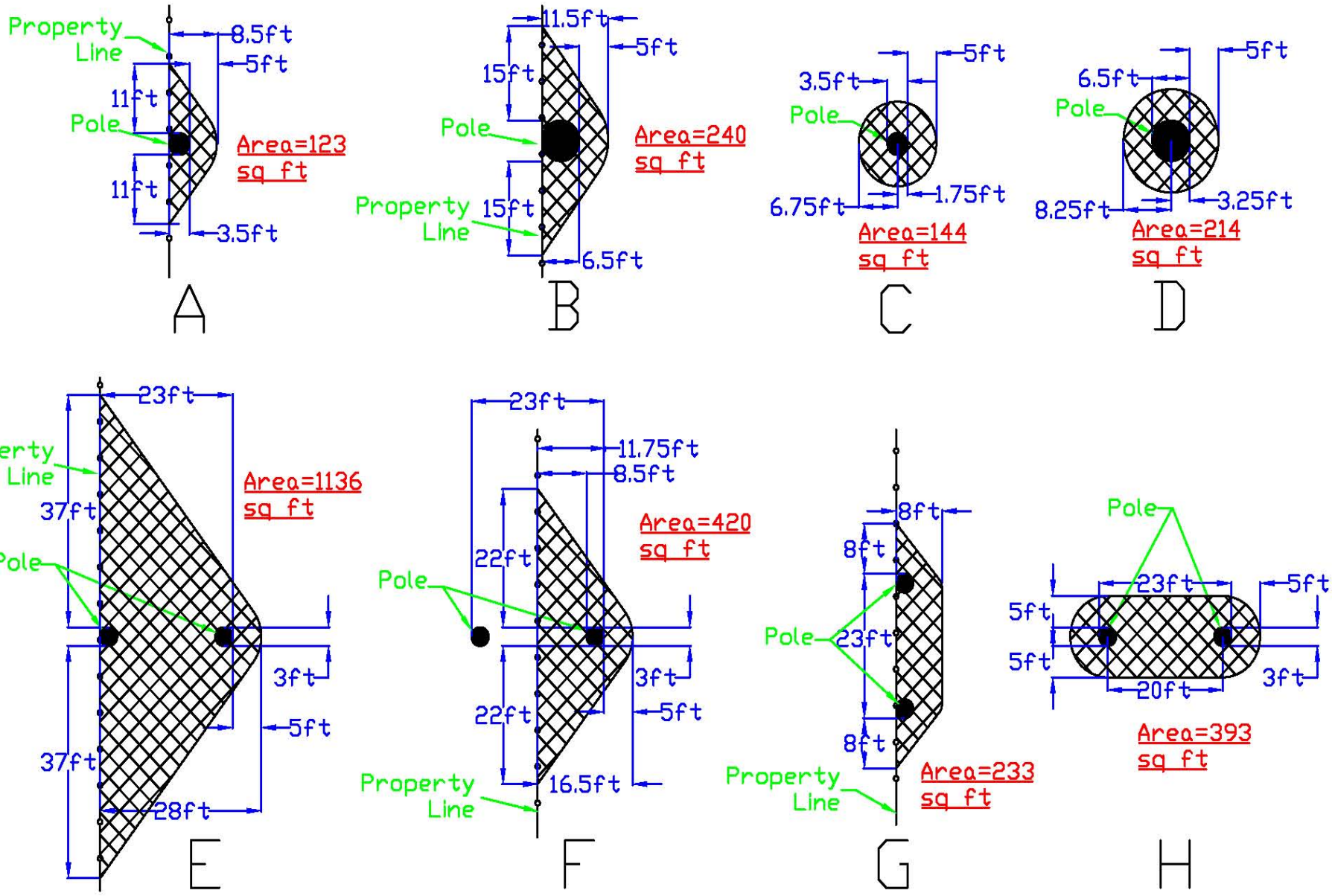


FIGURE # 1	INT	DATE
	DRAWN BY: sab	05/23/07
	APP'D BY: sab	05/23/07
	JOB No. DEQ Farming Task II	
	DWG. No. Figure 1	SHEET OF
	SCALE NA	

Pole Configuration Footprint Layouts
Farming Cost Review – Revised Report
Montana–Alberta Tie Ltd
Montana Department Of Environmental Quality

HydroSolutions Inc

Tables

Table 1. Footprint and Overlap

Layout [1]	Structure	Pole Diam. (ft)	Location	Orientation	Minimum Buffer Distance From Center of Pole (ft)	Footprint (square feet)	Implement Width (feet)			
							70	134	36	70
							Overlap (square feet)			
							Harrow	Fargo & Spraying	Disc & Combine	Fertilizing, Toolbar & Seeding
A	Mono-pole	3.5	Edge	Regular Span	1.75	123	123	123	123	123
B	Mono-pole	6.5	Edge	Long Span	3.25	240	240	240	240	240
C	Mono-pole	3.5	Interior	Regular Span	1.75	144	18,362	62,093	5,597	18,362
D	Mono-pole	6.5	Interior	Long Span	3.25	214	19,022	63,356	5,937	19,022
E	H-pole	3.0	Edge	Perpendicular	1.5	1136	1,136	1,136	1,136	1,136
F	H-pole	3.0	Edge	Straddling	1.5	420	420	420	420	420
G	H-pole	3.0	Edge	Parallel	1.5	233	233	233	233	233
H	H-pole	3.0	Interior		1.5	393	21,511	68,086	7,237	21,511

Notes: [1] From Figure 1.
Mono-pole: Regular and long span are 3.5 and 6.5-ft diam, respectively.
H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.
Safety buffer: 5-ft.

Table compiled by Shane Bofto, Engineer & Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/12/07. Revised 6/2/08.

Table 2. Dryland Costs of Farming Around Pole(s).

Layout[1]	Structure	Pole Diam. (ft)	Location	Orientation	Farming Practice			
					Spring Wheat-Fallow		Continuous Crop Spring Wheat	
					Information Source	Annual Costs (per structure)[2]	Information Source	Annual Costs (per structure)[2]
A	Mono-pole	3.5	Edge	Regular Span	Attachment DL-1	$33.05	Attachment DL-9	$40.10
B	Mono-pole	6.5	Edge	Long Span	Attachment DL-2	34.76	Attachment DL-10	42.57
C	Mono-pole	3.5	Interior	Regular Span	Attachment DL-3	270.38	Attachment DL-11	387.13
D	Mono-pole	6.5	Interior	Long Span	Attachment DL-4	276.60	Attachment DL-12	396.48
E	H-pole	3.0	Edge	Perpendicular	Attachment DL-5	79.10	Attachment DL-13	98.99
F	H-pole	3.0	Edge	Straddling	Attachment DL-6	47.89	Attachment DL-14	58.97
G	H-pole	3.0	Edge	Parallel	Attachment DL-7	34.65	Attachment DL-15	42.42
H	H-pole	3.0	Interior		Attachment DL-8	309.56	Attachment DL-16	443.24

Notes:

[1]From Figure 1.

[2]Cost reflect 2008 prices (i.e. $.4.25 red dyed diesel)

Mono-pole: Regular and long span are 3.5 and 6.5-ft diam, respectively.

H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.

Safety buffer: 5-ft.

Table compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/21/07. Revised 6/2/08.

Table 3. Irrigated Costs of Farming Around Pole(s).

Layout[1]	Structure	Pole Diam. (ft)	Location	Orientation	Irrigated Cropping - Spring Wheat	
					Information Source	Annual Costs (per structure)[2]
A	Mono-pole	3.5	Edge	Regular Span	Attachment IRR-1	$42.73
B	Mono-pole	6.5	Edge	Long Span	Attachment IRR-2	47.70
C	Mono-pole	3.5	Interior	Regular Span	Attachment IRR-3	616.75
D	Mono-pole	6.5	Interior	Long Span	Attachment IRR-4	633.10
E	H-pole	3.0	Edge	Perpendicular	Attachment IRR-5	123.28
F	H-pole	3.0	Edge	Straddling	Attachment IRR-6	67.95
G	H-pole	3.0	Edge	Parallel	Attachment IRR-7	47.40
H	H-pole	3.0	Interior		Attachment IRR-8	705.03

Notes:

[1]From Figure 1.

[2]Cost reflect 2008 prices (i.e. $.4.25 red dyed diesel)

Mono-pole: Regular and long span are 3.5 and 6.5-ft diam, respectively.

H-Pole: 3-ft diam. each, 20-ft separation center to center, 23-ft from outside pole to outside pole.

Safety buffer: 5-ft.

Table compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/21/07. Revised 6/2/08.

Appendix A
Farming Cost Sheets
Attachments DL-1 to 16

Attachment DL-1

Dryland Wheat-Fallow Rotation

Regular Span Mono-Pole at Field Edge (Layout A)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	123	0.003	$0.04
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	123	0.003	0.21
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	123	0.003	0.10
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	123	0.003	0.39
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	123	0.003	0.13
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	123	0.003	0.05
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	123	0.003	0.13
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	123	0.003	0.41
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	123	0.003	2.03
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	123	0.003	0.06
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	123	0.003	0.03
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	123	0.003	0.02
Labor & Equipment	$50	hour	0.25	hour	5	$62.50	62.50			62.50
TOTAL COST OF 2 YEAR ROTATION										**$66.09**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$33.05**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-2

Dryland Wheat-Fallow Rotation

Long Span Mono-Pole at Field Edge (Layout B)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	240	0.006	$0.07
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	240	0.006	0.42
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	240	0.006	0.19
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	240	0.006	0.76
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	240	0.006	0.25
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	240	0.006	0.09
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	240	0.006	0.25
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	240	0.006	0.79
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	240	0.006	3.97
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	240	0.006	0.12
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	240	0.006	0.06
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	240	0.006	0.04
Labor & Equipment	$50	hour	0.25	hour	5	$62.50	62.50			62.50
TOTAL COST OF 2 YEAR ROTATION										**$69.51**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$34.76**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-3

Dryland Wheat-Fallow Rotation

Regular Span Mono-Pole in Field Interior (Layout C)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	18,362	0.422	$5.37
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	62,093	1.425	108.11
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	62,093	1.425	49.89
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	18,362	0.422	58.38
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	18,362	0.422	19.32
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	62,093	1.425	23.63
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	5,597	0.128	5.78
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	62,093	1.425	205.27
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	144	0.003	2.38
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	144	0.003	0.07
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	144	0.003	0.03
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	144	0.003	0.02
Labor & Equipment	$50	hour	0.25	hour	5	$62.50	62.50			62.50
TOTAL COST OF 2 YEAR ROTATION										**$540.77**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$270.38**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-4

Dryland Wheat-Fallow Rotation

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	19,022	0.437	$5.57
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	63,356	1.454	110.31
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	63,356	1.454	50.91
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	19,022	0.437	60.48
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	19,022	0.437	20.01
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	63,356	1.454	24.11
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	5,937	0.136	6.13
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	63,356	1.454	209.44
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	214	0.005	3.54
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	214	0.005	0.11
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	214	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	214	0.005	0.03
Labor & Equipment	$50	hour	0.25	hour	5	$62.50	62.50			62.50
TOTAL COST OF 2 YEAR ROTATION										**$553.20**
ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE										**$276.60**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-5

Dryland Wheat-Fallow Rotation

H-Poles Perpendicular to Field Edge (Layout E)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	1,136	0.026	$0.33
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	1,136	0.026	1.98
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	1,136	0.026	0.91
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	1,136	0.026	3.61
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	1,136	0.026	1.20
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	1,136	0.026	0.43
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	1,136	0.026	1.17
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	1,136	0.026	3.76
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	1,136	0.026	18.78
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	1,136	0.026	0.59
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	1,136	0.026	0.26
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	1,136	0.026	0.17
Labor & Equipment	$50	hour	0.5	hour	5	$125.00	125.00			125.00
TOTAL COST OF 2 YEAR ROTATION										**$158.19**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$79.10**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-6

Dryland Wheat-Fallow Rotation

H-Poles Perpendicular to Field Edge & Splitting Property Line (Layout F)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	420	0.010	$0.12
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	420	0.010	0.73
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	420	0.010	0.34
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	420	0.010	1.34
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	420	0.010	0.44
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	420	0.010	0.16
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	420	0.010	0.43
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	420	0.010	1.39
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	420	0.010	6.94
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	420	0.010	0.22
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	420	0.010	0.10
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	420	0.010	0.06
Labor & Equipment	$50	hour	0.334	hour	5	$83.50	83.50			83.50
TOTAL COST OF 2 YEAR ROTATION										**$95.77**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$47.89**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-7

Dryland Wheat-Fallow Rotation

H-Poles Parallel to Field Edge (Layout G)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	233	0.005	$0.07
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	233	0.005	0.41
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	233	0.005	0.19
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	233	0.005	0.74
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	233	0.005	0.25
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	233	0.005	0.09
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	233	0.005	0.24
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	233	0.005	0.77
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	233	0.005	3.85
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	233	0.005	0.12
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	233	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	233	0.005	0.04
Labor & Equipment	$50	hour	0.25	hour	5	$62.50	62.50			62.50
TOTAL COST OF 2 YEAR ROTATION										**$69.31**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$34.65**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.
[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-8

Dryland Wheat-Fallow Rotation

H-Pole in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost/Ac	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	21,511	0.494	$6.30
Chemical Fallow:										
Roundup (RT3)	$60.00	gallon	16	ounce	4	$30.00				
Dicamba	$75.00	gallon	4	ounce	1	2.34				
Ammonium sulfate	$7.00	gallon	16	ounce	4	3.50				
Application	$10.00	acre			4	40.00	75.84	68,086	1.563	118.55
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	68,086	1.563	54.71
Fertilizer:										
Banded w/ Seed	$1,300	ton	75	pound	1	$48.75				
Topdress N	$800	ton	200	pound	1	80.00				
Topdress App	$9.75	acre			1	9.75	138.50	21,511	0.494	68.39
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	21,511	0.494	22.63
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	68,086	1.563	25.91
Harvesting:										
Combine	$45.00	acre			1	$45.00	45.00	6,982	0.160	7.21
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	60	bushel	20%	$144.00	144.00	68,086	1.563	225.08
Pole Footprint	$12.00	bushel	60	bushel		$720.00	720.00	393	0.009	6.50
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	3	$22.50	22.50	393	0.009	0.20
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	393	0.009	0.09
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	393	0.009	0.06
Labor & Equipment	$50	hour	0.334	hour	5	$83.50	83.50			83.50
TOTAL COST OF 2 YEAR ROTATION										**$619.13**

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$309.56**

Estimated Winter Wheat Yield: 60 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08.

Attachment DL-9

Dryland Continuous Crop Rotation

Regular Span Mono-Pole at Field Edge (Layout A)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	123	0.003	$0.04
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	123	0.003	0.10
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	123	0.003	0.10
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	123	0.003	0.37
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	123	0.003	0.13
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	123	0.003	0.05
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	123	0.003	0.12
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	123	0.003	0.27
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	123	0.003	1.36
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	123	0.003	0.02
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	123	0.003	0.03
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	123	0.003	0.02
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$40.10**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-10

Dryland Continuous Crop Rotation

Long Span Mono-Pole at Field Edge (Layout B)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	240	0.006	$0.07
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	240	0.006	0.20
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	240	0.006	0.19
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	240	0.006	0.72
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	240	0.006	0.25
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	240	0.006	0.09
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	240	0.006	0.23
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	240	0.006	0.53
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	240	0.006	2.64
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	240	0.006	0.04
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	240	0.006	0.06
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	240	0.006	0.04
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE AT FIELD EDGE **$42.57**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-11

Dryland Continuous Crop Rotation

Regular Span Mono-Pole in Field Interior (Layout C)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	18,362	0.422	$5.37
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	62,093	1.425	52.39
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	62,093	1.425	49.89
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	18,362	0.422	55.12
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	18,362	0.422	19.32
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	62,093	1.425	23.63
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	5,597	0.128	5.40
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	62,093	1.425	136.84
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	144	0.003	1.59
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	144	0.003	0.02
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	144	0.003	0.03
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	144	0.003	0.02
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE IN FIELD INTERIOR **$387.13**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-12

Dryland Continuous Crop Rotation

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	19,022	0.437	$5.57
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	63,356	1.454	53.45
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	63,356	1.454	50.91
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	19,022	0.437	57.10
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	19,022	0.437	20.01
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	63,356	1.454	24.11
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	5,937	0.136	5.72
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	63,356	1.454	139.63
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	214	0.005	2.36
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	214	0.005	0.04
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	214	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	214	0.005	0.03
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR **$396.48**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-13

Dryland Continuous Crop Rotation

H-Poles Perpendicular to Field Edge (Layout E)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	1,136	0.026	$0.33
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	1,136	0.026	0.96
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	1,136	0.026	0.91
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	1,136	0.026	3.41
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	1,136	0.026	1.20
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	1,136	0.026	0.43
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	1,136	0.026	1.10
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	1,136	0.026	2.50
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	1,136	0.026	12.52
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	1,136	0.026	0.20
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	1,136	0.026	0.26
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	1,136	0.026	0.17
Labor & Equipment	$50	hour	0.5	hour	3	$75.00	75.00			75.00

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE **$98.99**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-14

Dryland Continuous Crop Rotation

H-Poles Perpendicular to Field Edge & Splitting Property Line (Layout F)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	420	0.010	$0.12
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	420	0.010	0.35
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	420	0.010	0.34
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	420	0.010	1.26
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	420	0.010	0.44
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	420	0.010	0.16
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	420	0.010	0.40
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	420	0.010	0.93
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	420	0.010	4.63
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	420	0.010	0.07
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	420	0.010	0.10
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	420	0.010	0.06
Labor & Equipment	$50	hour	0.334	hour	3	$50.10	50.10			50.10

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE & SPLITTING PROPERTY LINE **$58.97**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-15

Dryland Continuous Crop Rotation

H-Poles Parallel to Field Edge (Layout G)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	233	0.005	$0.07
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	233	0.005	0.20
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	233	0.005	0.19
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	233	0.005	0.70
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	233	0.005	0.25
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	233	0.005	0.09
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	233	0.005	0.22
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	233	0.005	0.51
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	233	0.005	2.57
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	233	0.005	0.04
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	233	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	233	0.005	0.04
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND H-POLES PARALLEL TO FIELD EDGE **$42.42**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Attachment DL-16

Dryland Continuous Crop Rotation

H-Poles in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Heavy Harrow	$12.75	acre			1	$12.75	$12.75	21,511	0.494	$6.30
Post Harvest/Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	2	$15.00				
Ammonium sulfate	$7.00	gallon	16	ounce	2	1.75				
Application	$10.00	acre			2	20.00	36.75	68,086	1.563	57.44
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$6.50	acre			1	6.50				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	35.00	68,086	1.563	54.71
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	60	pound	1	$39.00				
Topdress N[2]	$800	ton	205	pound	1	82.00				
Topdress App	$9.75	acre			1	9.75	130.75	21,511	0.494	64.57
Planting:										
Seed	$20.00	bu	70	pound	1	$23.33				
Seeding	$22.50	acre			1	22.50	45.83	21,511	0.494	22.63
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	68,086	1.563	25.91
Harvesting:										
Combine	$42.00	acre			1	$42.00	42.00	7,237	0.166	6.98
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	40	bushel	20%	$96.00	96.00	68,086	1.563	150.05
Pole Footprint	$12.00	bushel	40	bushel		$480.00	480.00	393	0.009	4.33
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	393	0.009	0.07
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	393	0.009	0.09
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	393	0.009	0.06
Labor & Equipment	$50	hour	0.334	hour	3	$50.10	50.10			50.10

ANNUAL COST OF FARMING AROUND H-POLES IN FIELD INTERIOR **$443.24**

Estimated Spring Wheat Yield: 40 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 100 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/13/07. Revised 6/2/08

Appendix B
Farming Cost Sheet
Attachments IRR-1 to 8

Attachment IRR-1

Irrigated Farming

Regular Span Mono-Pole at Field Edge (Layout A)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	123	0.003	$0.13
Toobar	$18.00	acre			2	36.00	36.00	123	0.003	0.10
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	123	0.003	0.05
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	123	0.003	0.11
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	123	0.003	0.74
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	123	0.003	0.16
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	123	0.003	0.05
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	123	0.003	0.16
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	123	0.003	0.61
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	123	0.003	3.05
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	123	0.003	0.02
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	123	0.003	0.03
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	123	0.003	0.02
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE AT FIELD EDGE **$42.73**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-2

Irrigated Farming

Long Span Mono-Pole at Field Edge (Layout B)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	240	0.006	$0.25
Toobar	$18.00	acre			2	36.00	36.00	240	0.006	0.20
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	240	0.006	0.10
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	240	0.006	0.21
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	240	0.006	1.44
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	240	0.006	0.32
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	240	0.006	0.09
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	240	0.006	0.31
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	240	0.006	1.19
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	240	0.006	5.95
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	240	0.006	0.04
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	240	0.006	0.06
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	240	0.006	0.04
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE AT FIELD EDGE **$47.70**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-3

Irrigated Farming

Regular Span Mono-Pole in Field Interior (Layout C)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	5,597	0.128	$5.78
Toobar	$18.00	acre			2	36.00	36.00	18,362	0.422	15.18
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	62,093	1.425	26.19
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	62,093	1.425	54.88
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	18,362	0.422	110.55
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	18,362	0.422	24.17
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	62,093	1.425	23.63
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	5,597	0.128	7.32
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	62,093	1.425	307.90
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	144	0.003	3.57
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	144	0.003	0.02
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	144	0.003	0.03
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	144	0.003	0.02
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND REGULAR SPAN MONO-POLE IN FIELD INTERIOR **$616.75**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-4

Irrigated Farming

Long Span Mono-Pole in Field Interior (Layout D)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	5,937	0.136	$6.13
Toobar	$18.00	acre			2	36.00	36.00	19,022	0.437	15.72
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	63,356	1.454	26.73
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	63,356	1.454	56.00
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	19,022	0.437	114.52
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	19,022	0.437	25.04
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	63,356	1.454	24.11
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	5,937	0.136	7.77
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	63,356	1.454	314.16
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	214	0.005	5.31
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	214	0.005	0.04
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	214	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	214	0.005	0.03
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50
ANNUAL COST OF FARMING AROUND LONG SPAN MONO-POLE IN FIELD INTERIOR										**$633.10**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-5

Irrigated Farming

H-Poles Perpendicular to Field Edge (Layout E)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	1,136	0.026	$1.17
Toobar	$18.00	acre			2	36.00	36.00	1,136	0.026	0.94
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	1,136	0.026	0.48
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	1,136	0.026	1.00
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	1,136	0.026	6.84
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	1,136	0.026	1.50
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	1,136	0.026	0.43
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	1,136	0.026	1.49
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	1,136	0.026	5.63
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	1,136	0.026	28.17
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	1,136	0.026	0.20
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	1,136	0.026	0.26
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	1,136	0.026	0.17
Labor & Equipment	$50	hour	0.5	hour	3	$75.00	75.00			75.00

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE **$123.28**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.

[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-6

Irrigated Farming

H-Poles Perpendicular to Field Edge & Splitting Property Line (Layout F)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	420	0.010	$0.43
Toobar	$18.00	acre			2	36.00	36.00	420	0.010	0.35
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	420	0.010	0.18
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	420	0.010	0.37
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	420	0.010	2.53
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	420	0.010	0.55
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	420	0.010	0.16
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	420	0.010	0.55
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	420	0.010	2.08
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	420	0.010	10.41
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	420	0.010	0.07
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	420	0.010	0.10
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	420	0.010	0.06
Labor & Equipment	$50	hour	0.334	hour	3	$50.10	50.10			50.10

ANNUAL COST OF FARMING AROUND H-POLES PERPENDICULAR TO FIELD EDGE & SPLITTING PROPERTY LINE **$67.95**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.
2Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-7

Irrigated Farming

H-Poles Parallel to Field Edge (Layout G)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acre	Overlap Cost
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	233	0.005	$0.24
Toobar	$18.00	acre			2	36.00	36.00	233	0.005	0.19
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	233	0.005	0.10
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	233	0.005	0.21
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	233	0.005	1.40
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	233	0.005	0.31
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	233	0.005	0.09
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	233	0.005	0.30
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	233	0.005	1.16
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	233	0.005	5.78
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	233	0.005	0.04
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	233	0.005	0.05
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	233	0.005	0.04
Labor & Equipment	$50	hour	0.25	hour	3	$37.50	37.50			37.50

ANNUAL COST OF FARMING AROUND H-POLES PARALLEL TO FIELD EDGE **$47.40**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.
[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

Attachment IRR-8

Irrigated Farming

H-Poles in Field Interior (Layout H)

Operation	Cost	Unit	Rate/ac	Unit	No. of App	Cost/Ac	Oper. Total Cost	Overlap Ft^2	Overlap Acres	Overlap Cost/Pole
Post Harvest:										
Disc, Offset	$22.50	acre			2	$45.00	$45.00	7,237	0.166	$7.48
Toobar	$18.00	acre			2	36.00	36.00	21,511	0.494	17.78
Preplant Spraying										
Roundup (RT3)	$60.00	gallon	16	ounce	1	$7.50				
Ammonium sulfate	$7.00	gallon	16	ounce	1	0.88				
Application	$10.00	acre			1	10.00	18.38	68,086	1.563	28.72
Wildoat Control:										
Fargo	$1.05	pound	15	pound	1	$15.75				
Application	$10.00	acre			1	10.00				
Incorp w/ Heavy Harrow	$12.75	acre			1	12.75	38.50	68,086	1.563	60.18
Fertilizer:										
Banded w/ Seed[1]	$1,300	ton	90	pound	1	$58.50				
Topdress N[2]	$800	ton	480	pound	1	192.00				
Topdress App	$11.75	acre			1	11.75	262.25	21,511	0.494	129.51
Planting:										
Seed	$20.00	bu	100	pound	1	$33.33				
Seeding	$24.00	acre			1	24.00	57.33	21,511	0.494	28.31
In Crop Spraying:										
Affinity Broad Spectrum	$10.50	ounce	0.5	ounce	1	$5.25				
LV-6 (2,4-D)	$25.00	gallon	6	ounce	1	1.17				
Surfactant	$20.00	gallon	1	ounce	1	0.16				
Application	$10.00	acre			1	10.00	16.58	68,086	1.563	25.91
Harvesting:										
Combine	$57.00	acre			1	$57.00	57.00	7,237	0.166	9.47
Crop Loss:										
Quality/Quanity in Overlap	$12.00	bushel	90	bushel	20%	$216.00	216.00	68,086	1.563	337.62
Pole Footprint	$12.00	bushel	90	bushel		$1,080.00	1,080.00	393	0.009	9.74
Weed Control Around Pole:										
Roundup (RT3)	$60.00	galllon	16	ounce	1	$7.50	7.50	393	0.009	0.07
Maverick	$16.00	ounce	0.667	pound	1	$10.67	10.10	393	0.009	0.09
In Crop Herbicide Mix (application figured below)					1	$6.58	6.58	393	0.009	0.06
Labor & Equipment	$50	hour	0.334	hour	3	$50.10	50.10			50.10
ANNUAL COST OF FARMING AROUND H-POLES IN FIELD INTERIOR										**$705.03**

Estimated Spring Wheat Yield: 90 bu/ac

[1]Banding 11-52-0 or 18-46-0 with seed.
[2]Applying a total of 230 actual units of nitrogen per acre.

Compiled by Neal E. Fehringer, Certified Professional Agronomist, C.C.A. on 6/15/07. Revised 6/2/08

APPENDIX O:
POTENTIAL WIND FARM MITIGATION MEASURES ADAPTED FROM PROGRAMMATIC EIS - BLM WIND ENERGY DEVELOPMENT ON BLM LANDS IN THE WESTERN U.S.

Potential Wind Farm Mitigation Measures
Adapted from the BLM Programmatic EIS for
BLM Wind Energy Development on BLM Lands in the Western U.S.

The previous evaluations identified a number of potential impacts that could occur during the construction, operation, and decommissioning of a wind energy facility. A variety of mitigation measures could be implemented at wind energy projects to reduce potential impacts, and these are described in the following sections. In addition, monitoring during the various phases of wind energy development could be utilized to identify potential concerns and actions to address those concerns. Monitoring data could be used to track the condition of resources, to identify the onset of impacts, and to direct responses to address those impacts. The following sections identify measures that may be appropriate for mitigating potential impacts associated with new wind energy projects.

The discussion of potential measures to reduce impacts is heavily adapted from the final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-administered lands in the Western United States located at http://windeis.anl.gov/documents/fpeis/. Potential measures have been refined to address conditions found in the vicinity of the MATL line. Because this discussion is general in nature due to the lack of detailed plans on the wind farms, site-specific and species-specific issues associated with individual wind energy development projects are not assessed in detail. Rather, the range of possible impacts on resources present in the study area is identified. This section considers only indirect cumulative impacts of the transmission line that could be associated with wind farm development.

1.0 Land Use and Infrastructure

A variety of mitigation measures could be implemented to reduce potential land use impacts. These measures include:

- Wind energy projects could be planned to mitigate or minimize impacts to other land uses.

- Federal and state agencies, properties owners, and other stakeholders could be contacted as early as possible in the planning process to identify potentially sensitive land uses and issues;

- The U.S. Department of Defense would be consulted regarding the potential impact of a proposed wind energy project on military operations in order to identify and address any concerns;

- The FAA required notice of proposed construction would be made as early as possible to identify any air safety measures that would be required;

- To plan for efficient land use, necessary infrastructure requirements could be consolidated whenever possible, and current transmission and market access could be evaluated;

- Restoration plans could be developed to ensure that all temporary use areas are restored.

- Wind farm developers could work with affected landowners to reduce interference with existing land uses.

1.1 Land Use and Infrastructure - Transportation

Potential impacts from transportation activities related to site monitoring and testing, construction, operation, and decommissioning of typical wind energy development projects are expected to be low, provided appropriate planning and implementation actions are taken. The following measures to mitigate transportation impacts address the expected major activities associated with future wind energy development projects and general safety standards.

- Generally, roads could be required to follow natural contours and be reclaimed. Roads could be designed to an appropriate standard no higher than necessary to accommodate their intended functions.

- Existing roads could be used to the maximum extent possible, but only if in safe and environmentally sound locations. If new access roads are necessary, they could be designed and constructed to the appropriate standard no higher than necessary to accommodate their intended functions (e.g., traffic volume and weight of vehicles). Abandoned roads and roads that are no longer needed could be recontoured and revegetated.

- A transportation plan could be developed by project sponsors, particularly for the transport of turbine components, main assembly cranes, and other large pieces of equipment. The plan could consider specific object sizes, weights, origin, destination, and unique handling requirements and could evaluate alternative transportation approaches (e.g., barge or rail). In addition, the process to be used to comply with unique state requirements and to obtain all necessary permits could be clearly identified.

- A traffic management plan could be prepared by the project sponsors for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan could incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary changes in temporary lane configuration. Signs could be placed along roads to identify speed limits, travel restrictions, and other standard traffic control information. To minimize impacts on local commuters, consideration could be given to limiting construction vehicles traveling on public roadways during the morning and late afternoon commute time.

- Project personnel and contractors could be instructed and required to adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to ensure safe and efficient traffic flow.

- During construction and operation, traffic could be restricted to the roads developed for the project. Use of other unimproved roads could be restricted to emergency situations.

2.0 Geology and Soils

The potential for impacts to geologic resources and soils would occur primarily during construction and decommissioning. The following mitigation measures could reduce impacts:

- The size of disturbed land could be minimized as much as possible. Existing roads and borrow pits could be used as much as possible.

- Topsoil removed during construction could be salvaged and reapplied during reclamation. Disturbed soils could be reclaimed as quickly as possible or protective covers could be applied.

- Erosion controls that comply with state standards could be applied. Practices such as jute netting, silt fences, and check dams could be applied near disturbed areas.

- On-site surface runoff control features could be designed to minimize the potential for increased localized soil erosion. Drainage ditches could be constructed where necessary but held to a minimum. Potential soil erosion could be controlled at culvert outlets with appropriate structures. Catch basins, drainage ditches, and culverts could be cleaned and maintained regularly.

- Operators could identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquake activities, slope angles, and dip angles of geologic strata). Operators also could avoid creating excessive slopes during excavation and blasting operations. Special construction techniques could be used where applicable in areas of steep slopes, erodible soil, and stream channel/wash crossings.

- Borrow material could be obtained only from authorized and permitted sites.

- Access roads could be located to follow natural contours of the topography and minimize side hill cuts.

- Foundations and trenches could be backfilled with originally excavated materials as much as possible. Excavation material could be disposed of only in approved areas to control soil erosion and to minimize leaching of hazardous constituents. If suitable, excess excavation materials may be stockpiled for use in reclamation activities.

3.0 Engineering and Hazardous Materials (Safety also)

The following mitigation measures could be used to deal with hazardous materials during all activities associated with a wind energy project:

- The project sponsor could keep a comprehensive listing of the hazardous materials that would be used, stored, transported, or disposed of during activities associated with site monitoring and testing, construction, operation, and decommissioning of a wind energy project.

- Project sponsors could develop a hazardous materials management plan addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The plan could identify all hazardous materials that would be used, stored, or transported at the site. It could establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess materials. The plan could also identify requirements for notices to federal and local emergency response authorities and include emergency response plans.

- Project sponsors could develop a waste management plan identifying the waste streams that are expected to be generated at the site and addressing hazardous waste determination procedures, waste storage locations, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures. This plan could address all solid and liquid waste that may be generated at the site.

- Project sponsors could develop a spill prevention and response plan identifying where hazardous materials and wastes are stored on site, spill prevention measures to be implemented, training requirements, appropriate spill response actions for each material or waste, the locations of spill response kits on site, a procedure for ensuring that the spill response kits are adequately stocked at all times, and procedures for making timely notifications to authorities.

- Project sponsors must develop a storm water management plan under Montana DEQ regulation for the site to ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion.

- If pesticides are to be used on the site, an integrated pest management plan could be developed to ensure that applications will be conducted in accordance with state and federal regulations. Pesticide use could be limited to nonpersistent, immobile pesticides and could only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.

- Secondary containment could be provided for all on-site hazardous materials and waste storage, including fuel. In particular, fuel storage (for construction vehicles and equipment) could be a temporary activity occurring only for as long as is needed to

support construction and decommissioning activities. Fuel storage facilities could be removed from the site after these activities are completed.

- Wastes could be properly containerized and removed periodically for disposal at appropriate off-site permitted disposal facilities.

- In the event of an accidental release to the environment, the operator could document the event, including a root cause analysis, appropriate corrective actions taken, and a characterization of the resulting environmental or health and safety impacts. Documentation of the event could be provided to DEQ as required.

- Any wastewater generated in association with temporary, portable sanitary facilities could be periodically removed by a licensed hauler and introduced into an existing municipal sewage treatment facility. Temporary, portable sanitary facilities provided for construction crews could be adequate to support expected on-site personnel and could be removed at the completion of construction activities.

The following mitigation measures dealing with health and safety could be implemented where appropriate during all phases associated with a wind energy project:

- All construction, operation, and decommissioning activities could be conducted in compliance with applicable federal and state occupational safety and health standards (e.g., OSHA's Occupational Health and Safety Standards, 29 CFR Parts 1910 and 1926, respectively (DOL 2001, 2003).

- A safety assessment could be conducted to describe potential safety issues and the means that would be taken to mitigate them, including issues such as site access, construction, safe work practices, security, heavy equipment transportation, traffic management, emergency procedures, and fire control.

- A health and safety program could be developed to protect workers during construction, operation, and decommissioning of a wind energy project. The program could identify all applicable federal and state occupational safety standards, establish safe work practices for each task (e.g., requirements for personal protective equipment and safety harnesses; OSHA standard practices for safe use of explosives and blasting agents; and measures for reducing occupational EMF exposures), establish fire safety evacuation procedures, and define safety performance standards (e.g., electrical system standards and lighting protection standards). The program could include a training program to identify hazard training requirements for workers for each task and establish procedures for providing required training to all workers. Documentation of training and a mechanism for reporting serious accidents to appropriate agencies could be established.

- Electrical systems could be designed to meet all applicable safety standards (e.g., National Electrical Code [NEC] and IEC and National Electric Safety Code).

- For the mitigation of explosive hazards, workers could be required to comply with the OSHA standard (1910.109) for the safe use of explosives and blasting agents (DOL 1998).

- Measures could be considered to reduce occupational EMF exposures, such as backing the generator with iron to block the electric field, shutting down the generator when working in the vicinity, and/or limiting exposure time while the generator is running (Robichaud 2004).

- The project health and safety program could also address protection of public health and safety during construction, operation, and decommissioning of a wind energy project. The program could establish a safety zone or setback for wind turbine generators from residences and occupied buildings, roads, ROWs, and other public access areas that is sufficient to prevent accidents resulting from hazards such as blade failure and ice throw during the operation of wind turbine generators. It could identify requirements for temporary fencing around staging areas, storage yards, and excavations during construction or decommissioning activities. It could also identify measures to be taken during the operations phase to limit public access to facilities (e.g., permanent fencing could be installed around electrical substations, and turbine tower access doors could be locked to limit public access).

- Operators could consult with local authorities regarding increased traffic during the construction phase, including an assessment of the number of vehicles per day, their size, and type. Specific issues of concern (e.g., location of school bus routes and stops) could be identified and addressed in the traffic management plan.

- If operation of the wind turbines is expected to cause significant adverse impacts to nearby residences and occupied buildings from shadow flicker, low-frequency sound, or EMF, site-specific recommendations for addressing these concerns could be incorporated into the project design (e.g., establishing a sufficient setback from turbines).

- The project could be planned to minimize EMI (e.g., impacts to radar, microwave, television, and radio transmissions) and comply with FCC regulations. Signal strength studies could be conducted when proposed locations have the potential to impact transmissions. Potential interference with public safety communication systems (e.g., radio traffic related to emergency activities) could be avoided.

- In the event an installed wind energy development project results in EMI, the operator could work with the owner of the impacted communications system to resolve the problem. Potential mitigation may include realigning the existing antenna or installing relays to transmit the signal around the wind energy project. Additional warning information may also need to be conveyed to aircraft with onboard radar systems so that echoes from wind turbines can be quickly recognized.

- The project could be planned to comply with FAA regulations, including lighting requirements, and to avoid potential safety issues associated with proximity to airports, military bases or training areas, or landing strips.

- Operators could develop a fire management strategy to implement measures to minimize the potential for a human-caused fire.

4.0 Electric and Magnetic Fields – no measures.

5.0 Water Resources

Potential water resource impacts would mostly occur during the site construction and decommissioning phases. Mitigation measures that could reduce such impacts include:

- The amount of cleared and disturbed lands could be minimized as much as possible. Existing roads and borrow pits could be used as much as possible.

Topsoil removed during construction could be salvaged and reapplied during reclamation. Disturbed soils could be reclaimed as quickly as possible or protective covers could be applied.

- Operators could identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquakes, slope angles, and dip angles of geologic strata). Operators also could avoid creating excessive slopes during excavation and blasting operations. Special construction techniques could be used where applicable in areas of steep slopes, erodible soil, and stream channel/wash crossings.

- Erosion controls that comply with state standards could be applied. Controls such as jute netting, silt fences, and check dams could be applied near disturbed areas.

- Operators could gain a clear understanding of the local hydrogeology. Areas of groundwater discharge and recharge and their potential relationships with surface water bodies could be identified.

- Operators could avoid creating hydrologic conduits between two aquifers during foundation excavation and other activities.

- Proposed construction near aquifer recharge areas could be closely monitored to reduce the potential for contamination of the aquifer. This may require a study to determine localized aquifer recharge areas.

- Foundations and trenches could be backfilled with originally excavated material as much as possible. Excess excavated material could be disposed of only in approved areas.

- Existing drainage systems could not be altered, especially in sensitive areas such as erodible soils or steep slopes. When constructing stream or wash crossings, culverts or water conveyances for temporary and permanent roads could be designed to comply with

county standards, or if there are no county standards, to accommodate the runoff of a 10-year storm. Potential soil erosion could be controlled at culvert outlets with appropriate structures. Catch basins, roadway ditches, and culverts could be cleaned and maintained regularly.

- On-site surface runoff control features could be designed to minimize the potential for increased localized soil erosion. Drainage ditches could be constructed where necessary but held to a minimum. Potential soil erosion could be controlled at culvert outlets with appropriate structures. Catch basins, drainage ditches, and culverts could be cleaned and maintained regularly.

- Pesticide use could be limited to nonpersistent, immobile pesticides and could only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.

6.0 Wetlands and Floodplains

Wind energy development typically occurs on ridges and other elevated land where wetlands and surface bodies are not likely to occur; however, access roads and transmission lines may cross lands where these features may be more common. As a result, wetland and aquatic biota could be affected during construction of the wind energy project and its associated facilities.

- Construction activities may adversely affect wetlands and aquatic biota through (1) habitat disturbance, (2) mortality or injury of biota, (3) erosion and runoff, (4) exposure to contaminants, and (5) interference with migratory movements. Except for the construction of stream crossings for access routes or the unavoidable location of a transmission line support tower in a wetland, construction within wetlands or other aquatic habitats would be largely prohibited.

- The overall impact of construction activities on wetlands and aquatic resources would depend on the type and amount of aquatic habitat that would be disturbed, the nature of the disturbance (e.g., grading and filling, or erosion in construction support areas), and the aquatic biota that occupy the project site and surrounding areas.

- Avoid construction of stream crossings could directly impact aquatic habitat and biota within the crossing footprint.

7.0 Vegetation

The following measures could be implemented through weed control plans required by county weed boards to minimize the potential establishment of invasive vegetation at a wind energy development site and its associated facilities:

- Operators would develop a plan for control of noxious weeds and invasive plants acceptable to the county weed board, which could occur as a result of new surface disturbance activities at the site. The plan could address monitoring, weed identification,

the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching could be required.

- If trucks and construction equipment are arriving from locations with known invasive vegetation problems, a controlled inspection and cleaning area could be established to visually inspect construction equipment arriving at the project area and to remove and collect seeds that may be adhering to tires and other equipment surfaces.

- Access roads and newly established power lines could be monitored regularly for invasive species establishment, and weed control measures could be initiated immediately upon evidence of invasive species introduction.

- Fill materials that originate from areas with known invasive vegetation problems could not be used.

- Certified weed-free mulch could be used when stabilizing areas of disturbed soil.

- Habitat restoration activities and invasive vegetation monitoring and control activities could be initiated as soon as possible after construction activities are completed.

- All areas of disturbed soil could be reclaimed using weed-free native shrubs, grasses, and forbs.

- Pesticide use could be limited to nonpersistent, immobile pesticides and could only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.

- Access roads, utility and transmission line corridors, and tower site areas could be monitored regularly for invasive species establishment, and weed control measures could be initiated immediately upon evidence of invasive species introduction.

8.0 Wildlife

Mitigation measures that could minimize raptor fatalities at wind energy development projects include:

- Raptor use of the project area could be evaluated, and the project could be designed to minimize or mitigate the potential for raptor strikes. Scientifically rigorous raptor surveys could be conducted; the amount and extent of baseline data required could be determined on a project-specific basis.

- Areas with a high incidence of fog, mist, low cloud ceilings, and low visibility could be avoided.

- Turbine locations could be configured in order to avoid landscape features (including prairie dog colonies and other high-prey potential sites) known to attract raptors.

- Turbine arrays could be configured to minimize avian mortality (e.g., orient rows of turbines parallel to known bird movements).

- Underground or raptor-safe transmission lines could be used to reduce collision and electrocution potential.

- A habitat restoration plan could be developed that avoids or minimizes negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species (e.g., avoid the establishment of habitat that attracts high densities of prey animals used by raptors).

- Road cuts, which are favored by pocket gophers and ground squirrels, could be minimized.

- Either no vegetation or native plant species that do not attract small mammals could be maintained around the turbines.

- Tubular supports rather than lattice supports could be used, with no external ladders and platforms.

- The minimum amount of pilot warning and obstruction avoidance lighting specified by the FAA could be used, and the FAA could be consulted.

- Operators could determine if active raptor nests (i.e., raptor nests used during the breeding season) are present. Buffers could be provided to avoid disturbance of nesting raptors.

- Areas with high bird use could be avoided through micro-siting alternatives (e.g., at the Foote Creek Rim project, turbines were located slightly away from the rim edge of a flat top mesa [Strickland et al. 2001a]).

Measures that have been suggested for management of sage grouse and their habitats may apply to sharp-tailed grouse (e.g., Paige and Ritter 1999; Connelly et al. 2000; Montana Sage-Grouse Work Group 2003). The measures that have pertinence to wind energy development projects include:

- Identify and avoid both local (daily) and seasonal migration routes.

- Consider grouse and sage habitat when designing, constructing, and utilizing project access roads and trails.

- Avoid, when possible, siting energy developments in breeding habitats.

- Adjust the timing of activities to minimize disturbance to grouse during critical periods.

- When possible, locate energy-related facilities away from active leks or near grouse habitat.

- When possible, restrict noise levels to 10 dB above background noise levels at the lek sites.

- Minimize nearby human activities when birds are near or on leks.

- As practicable, do not conduct surface-use activities within crucial sage-grouse wintering areas from December 1 through March 15.

- Maintain sagebrush communities on a landscape scale.

- Provide compensatory habitat restoration for impacted sagebrush habitat.

- Avoid the use of pesticides at grouse breeding habitat during the brood-rearing season.

- Develop and implement appropriate measures to prevent the introduction or dispersal of noxious weeds.

- Avoid creating attractions for raptors and mammalian predators in grouse habitat.

- Consider measures to mitigate impacts at off-site locations to offset unavoidable grouse habitat alteration and reduction at the project site.

9.0 Fish – no measures.

10.0 Threatened, Endangered, and Candidate for Listing Species

If federally listed species are present in the project vicinity, the project sponsor is encouraged to contact the USFWS.

A variety of site-specific and species-specific measures may be appropriate to mitigate potential impacts to special status species if present in the project area. Such measures may include:

- Field surveys could be conducted to verify the absence or presence of the species in the project area and especially within individual project footprints.

- Project facilities or lay-down areas could not be placed in areas documented to contain or provide important habitat for those species.

11.0 Air Quality

The potential for adverse air quality impacts during the site monitoring and testing and operation phases would be limited. The greatest potential impacts would occur during the construction and decommissioning phases. Generation of fugitive particulates from vehicle traffic and earthmoving activities would need to be controlled. Typical measures (ABC Wind Company, LLC undated; PBS&J 2002) that could be implemented to control particulates and other pollutants include these:

- Mitigation measures for areas subject to vehicular travel

Access roads and on-site roads could be surfaced with aggregate materials, wherever appropriate.

Dust abatement techniques could be used on unpaved, unvegetated surfaces to minimize airborne dust.

Speed limits could be posted (e.g., 25 mph) and enforced to reduce airborne fugitive dust.

- Mitigation measures for soil and material storage and handling

Workers could be trained to handle construction material to reduce fugitive emissions.

Construction materials and stockpiled soils could be covered if they are a source of fugitive dust.

Storage piles at concrete batch plants could be covered if they are a source of fugitive dust.

- Mitigation measures for clearing and disturbing land

Disturbed areas could be minimized.

Dust abatement techniques could be used as earthmoving activities proceed and prior to clearing.

- Mitigation measures for earthmoving

Dust abatement techniques could be used before excavating, backfilling, compacting, or grading.

Disturbed areas could be revegetated as soon as possible after disturbance.

- Mitigation measures for soil loading and transport

If practicable, soil could be moist while being loaded into dump trucks.

Soil loads could be kept below the freeboard of the truck.

Drop heights could be minimized when loaders dump soil into trucks.

Gate seals could be tight on dump trucks.

Dump trucks could be covered before traveling on public roads.

- Mitigation measure for blasting

Dust abatement techniques could be used during blasting.

12.0 Audible Noise

The following mitigation measures could reduce potential noise impacts:

- Proponents of a wind energy development project could take measurements to assess the existing background noise levels at a given site and compare them with the anticipated noise levels associated with the proposed project.

- Noisy construction activities (including blasting) could be limited to the least noise-sensitive times of day (daytime only between 7 a.m. and 10 p.m.) and weekdays.

- Whenever feasible, different noisy activities (e.g., blasting and earthmoving) could be scheduled to occur at the same time since additional sources of noise generally do not add a significant amount of noise. That is, less-frequent noisy activities would be less annoying than frequent less-noisy activities.

- All equipment could have sound-control devices no less effective than those provided on the original equipment. All construction equipment used could be adequately muffled and maintained.

- All stationary construction equipment (i.e., compressors and generators) could be located as far as practicable from nearby residences.

- If blasting or other noisy activities are required during the construction period, nearby residents could be notified in advance.

13.0 Socioeconomics – no measures.

14.0 Paleontological and Cultural Resources

To mitigate or minimize potential paleontological resource impacts, the following mitigation measures could be adopted:

- Operators could determine whether paleontological resources exist in a project area on the basis of the sedimentary context of the area, a records search for past paleontological finds in the area, and/or a paleontological survey.

- A paleontological resources management plan could be developed for areas where there is a high potential for paleontological material to be present. Management options may include avoidance, removal of the fossils, or monitoring. If the fossils are to be removed, a mitigation plan could be drafted identifying the strategy for collection of the fossils in the project area. Often it is unrealistic to remove all of the fossils, in which case a sampling strategy can be developed. If an area exhibits a high potential but no fossils were observed during surveying, monitoring could be required. A qualified paleontologist could monitor all excavation and earthmoving in the sensitive area. Whether the strategy chosen is excavation or monitoring, a report detailing the results of the efforts could be produced.

- If an area has a strong potential for containing fossil remains and those remains are exposed on the surface for potential collection, steps could be taken to educate workers and the public on how to report these resources to the landowner.

- To mitigate or minimize potential impacts to cultural resources, the following mitigation measures could be adopted. On state or federal lands, some measures could be required.

- Where a wind farm would be located on state or federal lands, agencies with permitting authority could consult with Native American governments early in the planning process to identify issues and areas of concern regarding the proposed wind energy development. Aside from the fact that consultation is required under the National Historic Preservation Act (NHPA), consultation is necessary to establish whether the project is likely to disturb traditional cultural properties, affect access rights to particular locations, disrupt traditional cultural practices, and/or visually impact areas important to the Tribe(s).

- The presence of archaeological sites and historic properties in the area of potential effect could be determined on the basis of a records search of recorded sites and properties in the area and/or an archaeological survey. The State Historic Preservation Officer (SHPO) is the primary repository for cultural resource information, and the State DNRC offices and most BLM Field Offices also maintain this information for lands under their jurisdiction.

- Archaeological sites and historic properties present in the area of potential effect could be reviewed by an agency and/or a project sponsor to determine whether they meet the criteria of eligibility for listing on the NRHP. Cultural resources listed on or eligible for listing on the NRHP are considered “significant” resources.

- When any ROW application includes remnants of a National Historic Trail, is located within the viewshed of a National Historic Trail’s designed centerline, or includes or is within the viewshed of a trail eligible for listing on the National Register of Historic Places (NRHP), the operator could evaluate the potential visual impacts to the trail associated with the proposed project and identify appropriate mitigation measures.

- If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a cultural resources management plan could be developed by a regulatory agency and/or a project sponsor. This plan could address mitigation activities to be implemented for cultural resources found at the site. Avoidance of the area is always the preferred mitigation option. Other mitigation options include archaeological survey and excavation (as warranted) and monitoring. If an area exhibits a high potential, but no artifacts are observed during an archaeological survey, monitoring by a qualified archaeologist could be required during all excavation and earthmoving in the high-potential area. A report could be prepared documenting these activities. The CRMP also could (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of artifacts and destruction of property on public land.

- Periodic monitoring of significant cultural resources in the vicinity of development projects may help curtail potential looting/vandalism and erosion impacts. If impacts are recognized early, additional actions can be taken before the resource is destroyed.

- Unexpected discovery of cultural resources during construction could be brought to the attention of the responsible authorized officer or landowner immediately. Work could be halted in the vicinity of the find to avoid further disturbance to the resources while they are being evaluated and appropriate mitigation measures are being developed.

- Wind farm developers could inform construction workers and site operators of appropriate measures to avoid damage to or destruction of cultural resources.

15.0 Visuals

The potential for impacts to visual resources soils could occur during all phases of wind energy development. The following mitigation measures could reduce impacts (NWCC 2002; AusWEA 2002; Gipe 1998, 2002; NYSDEC 2000):

- Turbine arrays and the turbine design could be integrated with the surrounding landscape. To accomplish this integration, several elements of design need to be incorporated.

- The operator could provide visual order and unity among clusters of turbines (visual units) to avoid visual disruptions and perceived “disorder, disarray, or clutter” (Gipe 2002).

- To the extent possible given the terrain of a site, the operator could create clusters or groupings of wind turbines when placed in large numbers; avoid a cluttering effect by separating otherwise overly long lines of turbines, or large arrays; and insert breaks or open zones to create distinct visual units or groups of turbines.

- The operator could create visual uniformity in the shape, color, and size of rotor blades, nacelles, and towers (Gipe 1998).

- The use of tubular towers is recommended for visual unity. Truss or lattice-style wind turbine towers with lacework, pyramidal, or prism shapes could be avoided. Tubular towers present a simpler profile and less complex surface characteristics and reflective/shading properties.

- Components could be in proper proportion to one another. Nacelles and towers could be planned to form an aesthetic unit and could be combined with particular sizes and shapes in mind to achieve an aesthetic balance between the rotor, nacelle, and tower (Gipe 1998).
- Color selections for turbines could be made to reduce visual impact (Gipe 2002) and could be applied uniformly to tower, nacelle, and rotor, unless gradient or other patterned color schemes are used.

- The operator could use nonreflective paints and coatings to reduce reflection and glare. Turbines, visible ancillary structures, and other equipment could be painted before or immediately after installation. Uncoated galvanized metallic surfaces could be avoided because they would create a stronger visual contrast, particularly as they oxidize and darken.

- Commercial messages on turbines and towers could be avoided (Gipe 2002).

- The site design could be integrated with the surrounding landscape.

- To the extent practicable, the operator could avoid placing substations or large operations buildings on high land features and along “skylines” that are visible from nearby sensitive view points. The presence of these structures could be concealed or made less conspicuous. Conspicuous structures could be designed and constructed to harmonize with desirable or acceptable characteristics of the surrounding environment (Gipe 2002).

- The operator could bury power collection cables or lines on the site in a manner that minimizes additional surface disturbance.

- Commercial symbols (such as logos), trademarks, and messages could be avoided on sites or ancillary structures of wind energy projects. Similarly, billboards and advertising messages could be avoided (Gipe 1998, 2002).

- Site design could be accomplished to make security lights nonessential. Such lights increase the contrast between a wind energy project and the night sky, especially in rural/remote environments, where turbines would typically be installed. Where they are necessary, security lights could be extinguished except when activated by motion detectors (e.g., only around the substation) (Gipe 1998).

- Operators could minimize disturbance and control erosion by avoiding steep slopes (Gipe 1998) and by minimizing the amount of construction and ground clearing needed for roads, staging areas, and crane pads. Dust suppression techniques could be employed in arid environments to minimize impacts of vehicular and pedestrian traffic, construction, and wind on exposed surface soils.

- Disturbed surfaces could be restored as closely as possible to their original contour and revegetated immediately after, or contemporaneously with construction. Action could be prompt to limit erosion and to accelerate restoring the preconstruction color and texture of the landscape.

- The wind development site could be maintained during operation. Inoperative or incomplete turbines cause the misperception in viewers that "wind power does not work" or that it is unreliable.

- Inoperative turbines could be completely repaired, replaced, or removed. Nacelle covers and rotor nose cones could always be in place and undamaged (Gipe 1998).

- Wind energy projects could evidence environmental care, which would also reinforce the expectation and impression of good management for benign or clean power. Nacelles and towers could also be cleaned regularly (yearly, at minimum) to remove spilled or leaking fluids and the dirt and dust that would accumulate, especially in seeping lubricants.

- Facilities and off-site surrounding areas could be kept clean of debris, "fugitive" trash or waste, and graffiti. Scrap heaps and materials dumps could be prohibited and prevented. Materials storage yards, even if thought to be orderly, could be kept to an absolute minimum. Surplus, broken, disused materials and equipment of any size could not be allowed to accumulate (Gipe 2002).

- A decommissioning plan could be developed, and it could include the removal of all turbines and ancillary structures and restoration/reclamation of the site.

16.0 Mitigation during Site Monitoring and Testing

Site monitoring and testing would generally result in only minimal impacts to ecological resources. The following mitigation measures may ensure that ecological impacts during this stage of the project would be minimal:

- Existing roads could be used to the maximum extent feasible to access a proposed project area.

- If new access roads are necessary, they could be designed and constructed to the appropriate standard.

- Existing or new roads could be maintained to the condition needed for facility use.

- The area disturbed during the installation of meteorological towers (i.e., the tower footprint and its associated lay-down area) could be kept to a minimum.

- Individual meteorological towers could not be located in or near sensitive habitats or in areas where ecological resources known to be sensitive to human activities are present.

- Installation of meteorological towers could be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors (e.g., during periods of grouse nesting).

17.0 Mitigation during Plan of Development Preparation and Project Design

Mitigation measures may be considered during preparation of the project design to ensure that the siting of the overall wind energy development project and of individual facility structures, as well as various aspects of the design of individual facility structures, do not result in unacceptable impacts to ecological resources. The following measures could be incorporated into the siting of the wind development project:

- Operators could identify important, sensitive, or unique habitat and biota in the project vicinity and site, and design the project to avoid (if possible), minimize, or mitigate potential impacts to these resources. The design and siting of the facility could follow appropriate guidance and requirements from other resource agencies, as available and applicable.

- The operators could contact appropriate agencies early in the planning process to identify potentially sensitive ecological resources that may be present in the area of the wind energy development.

- The operators could conduct surveys for federal- and state-protected species and other species of concern within the project area.

- Operators could evaluate avian and bat use (including the locations of active nest sites, colonies, roosts, and migration corridors) of the project area by using scientifically rigorous survey methods (e.g., see NWCC 1999).

- The project could be planned to avoid (if possible), minimize, or mitigate impacts to wildlife and habitat.

- Discussion could be held with the appropriate agency biologists regarding the occurrence of sensitive species or other valued ecological resources in the proposed project area.

- Existing information on species and habitats in the project area could be reviewed.

The amount and extent of necessary preproject data would be determined on a project-by-project basis, based in part on the environmental setting of the proposed project location. Methods for collecting such data may be found in NWCC (1999) and California Energy Commission (2007).

17.1 Mitigating Habitat Impacts. The following measures could be considered during project siting to minimize potential habitat disturbance:

- If survey results indicate the presence of important, sensitive, or unique habitats (such as wetlands and sagebrush habitat) in the project vicinity, facility design could locate turbines, roads, and support facilities in areas least likely to impact those habitats.

- Habitat disturbance could be minimized by locating facilities (such as utility corridors and access roads) in previously disturbed areas (i.e., locate transmission lines within or adjacent to existing power line corridors).

- Existing roads and utility corridors could be utilized to the maximum extent feasible.

- New access roads and utility corridors could be configured to avoid high quality habitats and minimize habitat fragmentation.

- Site access roads and utility corridors could minimize stream crossings.

- A habitat restoration management plan could be developed that identifies vegetation, soil stabilization, and erosion reduction measures and requires that restoration activities be implemented as soon as possible following facility construction activities.

- Individual project facilities could be located to maintain existing stands of quality habitat and continuity between stands.

- The creation of, or increase in, the amount of edge habitat between natural habitats and disturbed lands could be minimized.

- To minimize impacts to aquatic habitats from increased erosion, the use of bridges or fill ramps rather than stream bank cutting could be designated for all stream crossings by access roads.

- Stream crossings could be designed to provide in-stream conditions that allow for and maintain uninterrupted movement and safe passage of fish.

17.2 Mitigating Site/Wildlife Interactions. To reduce the potential use of site facilities by perching birds, to reduce the potential for collisions with project facilities, and to reduce the potential for electrocution, the following measures could be considered during the design of individual facility structures:

- Locations that are heavily utilized by migratory birds and bats could be avoided.

- Permanent meteorological towers, transmission towers, and other facility structures could be designed to discourage their use by birds for perching or nesting.

- The use of guy wires on permanent meteorological towers could be avoided or minimized.

- Electrical supply lines could be buried in a manner that minimizes additional surface disturbance. Overhead lines could be used in cases where the burial of lines would result in further habitat disturbance.

- Power lines could be configured to minimize the potential for electrocution of birds, by following established guidelines (e.g., APLIC [2006], APLIC and USFWS ~2O05]).

- Operators could consider incorporating measures to reduce raptor use of the project site into the design of the facility layout (e.g., minimize road cuts and maintain nonattractive vegetation around turbines).

- Turbines and other project facilities could avoid locations in areas with known high bird usage; in known bird and/or bat migration corridors or known flight paths; near raptor nest sites; and in areas used by bats as colonial hibernation, breeding, and maternity/nursery colonies, if site studies show that they would pose a high risk to species of concern.

- Wind energy projects could avoid locations in areas with a high incidence of fog and mist.

- To reduce attraction of migratory birds to turbines and towers, the need for or use of sodium vapor lights at site facilities could be minimized or avoided.

- Turbines could be configured to avoid landscape features known to attract raptors, if site studies show that placing turbines there would pose a significant risk to raptors.

17.3 Mitigating Habitat Disturbance. To mitigate habitat reduction or alternation during construction, the following measures may be implemented:

- The size of all disturbed areas could be minimized.

- Where applicable, the extent of habitat disturbance could be reduced by keeping vehicles on access roads and minimizing foot and vehicle traffic through undisturbed areas.

- Habitat restoration activities could be initiated as soon as possible after construction activities are completed.

17.4 Mitigating Disturbance and Injury of Vegetation and Wildlife. These measures may be applicable to mitigate the disturbance or injury of biota during construction:

- In consultation with staff from natural resource management agencies, construction activities could be scheduled to avoid important periods of wildlife courtship, breeding, nesting, lambing, or calving.

- All construction employees could be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons. In addition, any pets could not be permitted on site during construction.

- Buffer zones could be established around raptor nests, bat roosts, and biota and habitats of concern, if site studies show that proposed facilities would pose a significant risk to avian or bat species of concern.

- Noise-reduction devices (e.g., mufflers) could be maintained in good working order on vehicles and construction equipment.

- Explosives could be used only within specified times and at specified distances from sensitive wildlife or surface waters as established by local, state and federal management agencies.

- The use of guy wires on permanent meteorological towers could be avoided.

17.5 Mitigating Erosion and Fugitive Dust Generation. Measures to minimize disturbance of ecological resources from erosion and fugitive dust may include:

- Erosion controls that comply with county, state, and federal standards could be applied. Controls such as jute netting, silt fences, and check dams could be applied near disturbed areas.

- All areas of disturbed soil could be reclaimed using weed-free native grasses, forbs, and shrubs. Reclamation activities could be undertaken as early as possible on disturbed areas.

- Dust abatement techniques could be used on unpaved, unvegetated surfaces to minimize airborne dust.

- Construction materials and stockpiled soil could be covered if they are a source of fugitive dust.

- Erosion and fugitive dust control measures could be inspected and maintained regularly.

17.6 Mitigating Fuel Spills. To minimize potential impacts to ecological resources from accidental fuel spills, the following mitigation measures may be implemented:

- All refueling could occur in a designated fueling area that includes a temporary berm to limit the spread of any spill.

- Drip pans could be used during refueling to contain accidental releases.

- Drip pans could be used under fuel pump and valve mechanisms of any bulk fueling vehicles parked at the construction site.

- Spills could be immediately addressed per the appropriate spill management plan, and soil cleanup and soil removal initiated if needed.

18.0 Mitigation during Operation

18.1 Mitigating Fuel Spills and Exposure to Site-Related Chemicals. The following measures may be implemented to minimize the potential for exposure of biota to accidental spills:

- Drip pans could be used during refueling to contain accidental releases.

- Pesticide use could be limited to nonpersistent, immobile pesticides and herbicides and could only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.

- Spills could be immediately addressed per the appropriate spill management plan, and soil cleanup and removal initiated, if needed.

18.2 Mitigating Site/Wildlife Interactions. Measures to mitigate these interactions were identified for inclusion in wind farm location and design. The following measures may further reduce the potential for bird collisions, primarily through reducing the attractiveness of the facility to birds:

- Taller vegetation (i.e., shrub species) could be encouraged along powerline transmission corridors to minimize foraging in these areas by raptors to the extent local conditions will support this vegetation.

- Areas around turbines, meteorological towers, and other facility structures could be maintained in an unvegetated state (e.g., crushed gravel), or only vegetation that does not support wildlife use could be planted.

- All unnecessary lighting could be turned off at night to limit attracting migratory birds.

- Employees, contractors, and site visitors could be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons. In addition, pets could be controlled to avoid harassment and disturbance of wildlife.

- Observations of potential wildlife problems, including wildlife mortality, could be reported to wildlife management agencies.

19.0 Mitigation during Decommissioning

The measures identified to mitigate construction impacts are applicable to decommissioning activities and may include:

- All turbines and ancillary structures could be removed from the site.
- Topsoil from all decommissioning activities could be salvaged and reapplied during final reclamation.
- All areas of disturbed soil could be reclaimed using weed-free native shrubs, grasses, and forbs.
- The vegetation cover, composition, and diversity could be restored to values commensurate with the ecological setting.

Following removal of the project facilities, implementation of appropriate habitat restoration activities could restore disturbed areas to pre-project conditions.

APPENDIX P: ENDANGERED SPECIES ACT SECTION 7, STATE HISTORIC PRESERVATION OFFICER, AND TRIBAL CONSULTATION

Department of Energy
Washington, DC 20585

July 9, 2007

CSKT Tribal Historic Preservation Office
ATTN: Marcia Pablo
Confederated Salish and Kootenai Tribes
P.O. Box 278
Pablo, MT 59855

Dear Ms. Pablo:

Montana Alberta Tie Line, Ltd. (MATL) has applied to the Department of Energy (DOE) for a Presidential permit to construct a single-circuit, 230,000-volt electric transmission line that would originate northeast of Lethbridge, Alberta, Canada, cross the U.S.-Canada border north of Cut Bank, Montana, and extend approximately 130 miles into the United States on State and private lands, terminating at an existing substation located north of Great Falls, Montana.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE has determined that the proposed Federal action is an undertaking that has the potential to cause effects on historic properties, and seeks to initiate consultation with the Confederated Salish and Kootenai Tribes (CSKT). Section 106 addresses undertakings occurring on or affecting historic properties, including those of traditional religious and cultural importance to the CSKT.

DOE would like to obtain information from the CSKT about historic properties in or near the project area and to provide you an opportunity to identify your concerns about such properties, including potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

To help in your review, enclosed is a CD containing a report titled, *A Class III Cultural Resources Inventory of the Montana Alberta Tie Ltd., Proposed Transmission Line: Preferred route, Glacier, Pondera, Teton, Chouteau and Cascade Counties, Montana* (GCM Services Report), dated 02-01-2007, and prepared by David Ferguson of AMEC Earth and Environmental for MATL.

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In addition to the CSKT, we are also requesting consultation with the Blackfeet Nation. If you know of other tribes that may have historic properties potentially impacted by this project, please let us know about them so we may offer to consult with them as well.

Furthermore, consistent with its obligations under the NHPA, DOE has also initiated consultation with the Montana State Historic Preservation Office (SHPO). In a May 9, 2007 letter, the SHPO determined that DOE's Federal undertaking, with appropriate avoidance and monitoring, should not have any direct effect to the sites located and documented in the GCM Services Report along the preferred route and designated reroutes for the MATL transmission line. For your information, a copy of the SHPO letter is enclosed.

Project Description- The total length of the proposed transmission line would be 203 miles, with approximately 130 miles constructed inside the United States. Laminated wood or wood pole H-frames would be the primary support structures used, with steel structures used for special applications such as monopole dead-end structures. MATL would use different types of H-Frame structures to address the various angles that would be necessary to accommodate changes in terrain and land use. Spacing between the two poles of a proposed H-frame structure would be about 23 feet. Typical span length between support structures would be about 800 feet, but could range from 500 feet to 1,600 feet. Approximately eight support structures per mile would be required. Depending on terrain, total disturbance at each support structure location during construction would be about 10,000 square feet.

Area of Potential Effect- The project's area of potential effect in the United States would be located in an area approximately 20 miles wide and 130 miles long within Glacier, Pondera, Teton, Chouteau, and Cascade Counties, Montana, from near the international border crossing west of the town of Sweetgrass, to the line terminus east of the town of Great Falls. The right-of-way would be approximately 100 feet wide, with the length ranging between 121.6 miles and 139.9 miles depending upon the alternative route.

More Information- DOE has worked closely with the Montana Department of Environmental Quality (MDEQ) on the preparation of a single environmental document that serves as both a Montana State Environmental Impact Statement (EIS) under the Montana Environmental Policy Act (MEPA), and a DOE environmental assessment (EA) under the National Environmental Policy Act (NEPA). This single environmental document (draft document) can be viewed and downloaded in its entirety from the MDEQ web site at http://www.deq.state.mt.us/. For your convenience, enclosed is a hard copy of the draft document.

The draft document was distributed for public comment in March 2007, and three public hearings were conducted to receive comments on the document during a 55-day public comment period. Based on comments received on the draft document indicating strong concern about land use and potential effects on farming, DOE has now determined an EIS, rather than an EA, to be the appropriate NEPA compliance document. Accordingly,

on June 7, 2007, DOE published in the *Federal Register*, the enclosed Notice of Intent to prepare an EIS.

DOE will continue working with the MDEQ to address the comments received on the draft document and prepare responses to comments. If the previously published draft document does not require significant modifications to address the comments, we will issue corrections and updated information as errata along with the responses and the March 2007 draft document as the DOE draft EIS. If extensive modifications are required to adequately address comments, we will issue a new document, along with the responses, as our draft EIS.

Please feel free to contact me directly by e-mail at Anthony.Como@hq.doe.gov, or by phone at 202-586-5935, with regard to any concerns or questions you may have with this proposed project.

Sincerely,

Anthony J. Como
Director, Permitting and Siting
Office of Electricity Delivery and
Energy Reliability

Enclosures

cc: Stan Wilmoth, State Archaeologist, Deputy SHPO
Tom Ring, MDEQ
J. Surbrugg, Tetra Tech

Department of Energy
Washington, DC 20585

July 9, 2007

Blackfeet Nation
ATTN: John Murray
Blackfeet Tribal Historic Preservation Office
P.O. Box 2809
Browning, MT 59417

Dear Mr. Murray:

Montana Alberta Tie Line, Ltd. (MATL) has applied to the Department of Energy (DOE) for a Presidential permit to construct a single-circuit, 230,000-volt electric transmission line that would originate northeast of Lethbridge, Alberta, Canada, cross the U.S.-Canada border north of Cut Bank, Montana, and extend approximately 130 miles into the United States on State and private lands, terminating at an existing substation located north of Great Falls, Montana.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE has determined that the proposed Federal action is an undertaking that has the potential to cause effects on historic properties, and seeks to initiate consultation with the Blackfeet Nation. Section 106 addresses undertakings occurring on or affecting historic properties, including those of traditional religious and cultural importance to the Blackfeet Nation.

DOE would like to obtain information from the Blackfeet Nation about historic properties in or near the project area and to provide you an opportunity to identify your concerns about such properties, including potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

To help in your review, enclosed is a CD containing a report titled, *A Class III Cultural Resources Inventory of the Montana Alberta Tie Ltd., Proposed Transmission Line: Preferred route, Glacier, Pondera, Teton, Chouteau and Cascade Counties, Montana* (GCM Services Report), dated 02-01-2007, and prepared by David Ferguson of AMEC Earth and Environmental for MATL.

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In addition to the Blackfeet Nation, we are also requesting consultation with the Confederated Salish and Kootenai Tribes. If you know of other tribes that may have historic properties potentially impacted by this project, please let us know about them so we may offer to consult with them as well.

Furthermore, consistent with its obligations under the NHPA, DOE has also initiated consultation with the Montana State Historic Preservation Office (SHPO). In a May 9, 2007 letter, the SHPO determined that DOE's Federal undertaking, with appropriate avoidance and monitoring, should not have any direct effect to the sites located and documented in the GCM Services Report along the preferred route and designated reroutes for the MATL transmission line. For your information, a copy of the SHPO letter is enclosed.

Project Description- The total length of the proposed transmission line would be 203 miles, with approximately 130 miles constructed inside the United States. Laminated wood or wood pole H-frames would be the primary support structures used, with steel structures used for special applications such as monopole dead-end structures. MATL would use different types of H-Frame structures to address the various angles that would be necessary to accommodate changes in terrain and land use. Spacing between the two poles of a proposed H-frame structure would be about 23 feet. Typical span length between support structures would be about 800 feet, but could range from 500 feet to 1,600 feet. Approximately eight support structures per mile would be required. Depending on terrain, total disturbance at each support structure location during construction would be about 10,000 square feet.

Area of Potential Effect- The project's area of potential effect in the United States would be located in an area approximately 20 miles wide and 130 miles long within Glacier, Pondera, Teton, Chouteau, and Cascade Counties, Montana, from near the international border crossing west of the town of Sweetgrass, to the line terminus east of the town of Great Falls. The right-of-way would be approximately 100 feet wide, with the length ranging between 121.6 miles and 139.9 miles depending upon the alternative route.

More Information- DOE has worked closely with the Montana Department of Environmental Quality (MDEQ) on the preparation of a single environmental document that serves as both a Montana State Environmental Impact Statement (EIS) under the Montana Environmental Policy Act (MEPA), and a DOE environmental assessment (EA) under the National Environmental Policy Act (NEPA). This single environmental document (draft document) can be viewed and downloaded in its entirety from the MDEQ web site at http://www.deq.state.mt.us/. For your convenience, enclosed is a hard copy of the draft document.

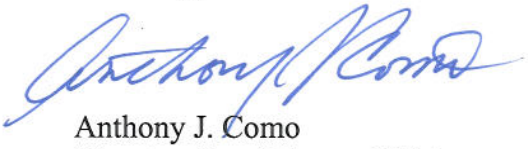
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EIS, rather than an EA, to be the appropriate NEPA compliance document. Accordingly, on June 7, 2007, DOE published in the *Federal Register*, the enclosed Notice of Intent to prepare an EIS.

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Please feel free to contact me directly by e-mail at Anthony.Como@hq.doe.gov, or by phone at 202-586-5935, with regard to any concerns or questions the Blackfeet Nation may have with this proposed project.

Sincerely,



Anthony J. Como
Director, Permitting and Siting
Office of Electricity Delivery and
Energy Reliability

Enclosures

cc: Stan Wilmoth, State Archaeologist, Deputy SHPO
Tom Ring, MDEQ
J. Surbrugg, Tetra Tech

Department of Energy
Washington, DC 20585

May 2, 2007

Dr. Mark Baumler
State Historic Preservation Officer
Montana Historical Society
P.O. Box 201202
1410 8th Avenue
Helena, MT 59620-1202

SUBJECT: Consultation Pursuant to Section 106 of the National Historic Preservation Act Regarding the Montana-Alberta Tie Line, Ltd. Proposed Presidential Permit.

Dear Dr. Baumler:

Montana Alberta Tie Line, Ltd. (MATL) applied to the Department of Energy (DOE) for a Presidential Permit to construct a single-circuit, 230,000-volt transmission line that would originate at a new substation to be constructed northeast of Lethbridge, Alberta, Canada, cross the U.S.-Canada international border north of Cut Bank, Montana, and extend approximately 125 miles into the United States, terminating at an existing substation north of Great Falls, Montana.

DOE has worked closely with the Montana Department of Environmental Quality (MDEQ) on the preparation of a single environmental document that serves as both a Montana State Environmental Impact Statement (EIS) under the Montana Environmental Policy Act (MEPA), and a DOE environmental assessment (EA) under the National Environmental Policy Act (NEPA). This single environmental document can be viewed and downloaded in its entirety from the MDEQ web site at http://www.deq.state.mt.us/ .

I am writing to initiate consultation with the Montana State Historic Preservation Officer (SHPO) under section 106 of the National Historic Preservation Act.

DOE has evaluated: (1) the potential impacts of the proposed project; (2) the planned mitigation measures as presented in the environmental document (Appendix F, DEQ Environmental Specifications); (3) MDEQ's Finding of No Effect/No Adverse Effect by avoiding disturbance to each individual cultural resource located within the area of potential project effect (MDEQ letter of February 22, 2007, attached); and (4) the Department of Natural Resources and Conservation's (DNRC) request for SHPO concurrence on their finding that there should be No Effect to Heritage Properties on state lands (DNRC letter of February 6, 2007, attached).

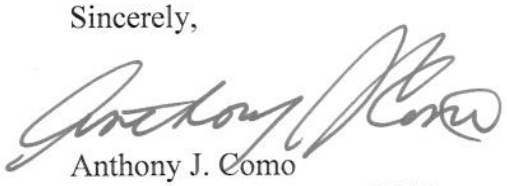
Based on this evaluation, DOE has determined that this undertaking will have no effect upon historic properties as defined in 36 CFR 800.16(i). Pursuant to 36 C.F.R. §800.3, I request your review of DOE's determination.

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Thank you for your attention to this matter. At any time, please feel free to contact me directly by e-mail at anthony.como@hq.doe.gov, by phone at 202-586-5935, or contact Brian Mills of my Office at brian.mills@hq.doe.gov, phone at 202-586-8267, with regard to any concerns that you may have with this proposed project.

.

Sincerely,



Anthony J. Como
Director, Permitting and Siting
Office of Electricity Delivery and
Energy Reliability

Attachments: MDEQ February 22, 2007
DNRC February 6, 2007

cc: MDEQ, Tom Ring
DNRC, Patrick Rennie

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

DIVISION OF TRUST LAND MANAGEMENT

BRIAN SCHWEITZER, GOVERNOR

1625 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

PO BOX 201601
HELENA, MONTANA 59620-1601

February 6, 2007

Montana State Historic Preservation Office
Attn: Dr. Mark Baumler
P.O. Box 201202
Helena, MT 59620-1202

RE: A Class III Cultural Resource Inventory of the Montana-Alberta Tie Ltd., Proposed Transmission Line: Preferred route, Glacier, Pondera, Teton, Chouteau and Cascade Counties, Montana. Consultant's report (GCM Services, Inc., Butte) prepared by David Ferguson for the AMEC Earth and Environmental (Helena, MT). Report dated 02-01-2007.

Dear Mark:

The above referenced report details the results of a cultural resources inventory within selected segments of the preferred route of a proposed overhead powerline in north-central Montana. With this letter the DNRC is initiating consultation with the Montana State Historic Preservation Officer as required by the State Antiquities Act mandates and the DNRC's administrative rules that implement those mandates.

As reported by the consulting archaeologist, during the course of inventory six partially, or wholly, state owned cultural properties were determined to be within, or near, the proposed area of potential effect (APE). Five of these resources (24GL1121, 24GL1126, 24GL1127, 24PN150 and 24TT578) have not been evaluated to determine whether they are eligible for listing in the National Register of Historic Places (i.e., if they are Heritage Properties). In contrast, site 24PN24 has been previously determined to be a Heritage Property. All six cultural resources consist of surface stone features presumably related to prehistoric Native American occupation of the region.

The arbitrarily defined boundaries for sites 24GL1121, 24GL1126, 24GL1127, 24PN150 and 24TT578 are situated outside the APE and will not be physically impacted by construction of the proposed overhead powerline. Site 24PN24 is partially within the APE and although the site will be crossed by the proposed overhead powerline, construction activities have been designed to avoid physical impacts to identified cultural

remains. Although visual impacts to all five properties will occur, their potential significance lies in the information that they could contain. This information would primarily occur in the form of associated sourceable/typeable artifacts, faunal and floral remains, and dateable organics (if any such remains exist in these sites).

The DNRC supports the consultant's recommendations concerning sites 24GL1121, 24GL1126, 24GL1127, 24PN24, 24PN150 and 24TT578. As such, the DNRC is seeking concurrence of the SHPO that there should be **No Effect** to Heritage Properties on state lands with the proposed undertaking.

Thank you in advance for your time, and if you have any questions or concerns regarding the above referenced report or project please contact either Dale Herbort (DEQ) or me.

Sincerely,

Patrick

Patrick J. Rennie
DNRC Archaeologist

cc. Tom Ring, DEQ
Dale Herbort, DEQ

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

February 22, 2007

Dr. Mark Baumler, SHPO
State Historic Preservation Office
Montana Historical Society
P.O. Box 201202
1410 8th Avenue
Helena, MT 59620-1202

RE: Review of Cultural Resource Inventory of MATL Proposed 230 kV Transmission Line

Dear Mark:

The Montana-Alberta Tie Ltd. (MATL) has proposed to construct a 230 kV transmission line between Alberta, Canada through Glacier, Pondera, Teton, Chouteau and Cascade Counties in Montana, and Great Falls, Montana. The review and licensing of this project falls under the authorization of the Montana Major Facility Siting Act, the Montana Environmental Policy Act, for school trust land, and the Montana Antiquities Act. Administrative jurisdiction may be claimed at a later date by the Department of Energy who will issue a Presidential Permit on the proposed transmission line due to its border crossing. Such jurisdiction may include National Environmental Policy Act and National Historic Preservation Act considerations.

MATL contracted GCM Services, Inc. of Butte, Montana to conduct cultural resource investigations south of the United States/Canadian border. The investigation was concluded with the report "A Class III Cultural Resource Inventory of the Montana-Alberta Tie Ltd., Proposed Transmission Line: Preferred Route, Glacier, Pondera, Teton, Chouteau and Cascade Counties, Montana." prepared by David Ferguson of GCM Services, Inc. In consultation with David Ferguson of GCM Services, Inc., Patrick Rennie of the Montana Department of Natural Resources, Jerry Clark of the Bureau of Land Management and Dale Herbort of the Montana Department of Environmental Quality, a memorandum of understanding was developed to guide most field work methodology. We agree with the application of those methodologies by GCM Services, Inc. in the execution of fieldwork.

Ten previously recorded historic and prehistoric sites were identified within the area of potential effect. An additional thirty-one historic and prehistoric sites were identified by pedestrian survey. Of these sites, 24GL1121, 24GL1126, 24GL1127, 24PN24, 24PN150, and 24TT578, are located on State Trust Lands. One, 24GL587, is located on BLM land.

All other sites are located on private properties. For the purposes of this undertaking, all identified sites are presumed to be potentially eligible to the National Register of Historic Places and/or the Montana Register of Heritage Sites unless having been determined ineligible by previous consultation with the State Historic Preservation Office.

In all cases, a finding of no effect or no adverse effect can be achieved as MATL has designed the transmission lines to either bypass around or span over the site, or has guided the construction of access roads and erection of power poles to avoid all identified features on the site. In particular, feature avoidance has been designed for the Thirty Knot site (24PN24), the Banka site (24PPN148), and the Sam George Hill site (24PN150) where pole locations and accesses were designated by the appropriate agency archeologists and MATL engineers on-site. At all other sites, access/service roads and the power lines will be aligned outside cultural site areas to avoid any disturbances to cultural sites. The attached two tables summarize the sites identified and the plans for avoidance. A consultation letter from Patrick Rennie of the DNRC concerning cultural sites on State Trust Lands is also attached.

Due to landowner constraints, there are approximately four miles of private right of way which have yet to be surveyed and inventoried. These areas will be examined prior to construction of the transmission line and appropriate consultations conducted. Should alternative alignments be selected by DEQ, surveys of high priority areas would be required prior to construction.

MATL has gone to great effort to achieve a Findings of No Effect/No Adverse Effect by avoiding disturbance to each individual cultural resource located within their area of potential effect. We agree with their consultants that the construction of the MATL Transmission Line has been designed in a manner to achieve a No Effect or No Adverse Effect for each cultural site. With the caveat that an archeologist be present to monitor construction through sites 24PN24, 24PN148, and 24PN150, we request the concurrence of the SHPO on our Findings of No Effect/No Adverse Effect on potential Historic and/or Heritage Properties for the MATL proposed Transmission Line.

Thank you very much for your consideration. Please contact Tom Ring (444-6785) or Dale Herbort (841-5028) if you have further questions.

Sincerely,

Warren D. McCullough

Warren D. McCullough
Chief, Environmental Management Bureau

cc: Bob Williams

Table 7-1. Summary of the Status of Sites encountered during the Class III Inventory.

Site Name	Site Number	Surface Owner	Site Type Type	NRHP Status	Effect to Site	Management Status	Map Figure
	24GL1125	Private	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-2
	24GL1119	Private	historic site	unevaluated	no adverse effect	avoid by design	Fig. 5-3
	24GL1120	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-3
	24GL1121	State	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-4
	24GL1127	State	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-4
	24GL1126	State	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-4
O'Brien H.S.	24GL1133	Private	homestead	not eligible	no effect	avoid by design	Fig. 5-5
Miller H.S.	24GL1134	Private	homestead	not eligible	no effect	avoid by design	Fig. 5-7
Jarrett HS	24GL1136	Private	homestead	not eligible	no effect	avoid by design	Fig. 5-7
Camp 9	24GL1135	Private	historic oil field	not eligible	no effect	unknown	Fig. 5-7
	24GL1132	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-9
30 Knot Site	24PN24	State and Private	cairns, tipi rings & alignments	eligible - D (consensus)	no adverse effect	avoidance of surface features	Fig. 5-10
Fortification	24PN147	Private	prehistoric structure	eligible - D (consultant)	no adverse effect	avoid by design	Fig. 5-14
	24PN152	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-14
	24PN153	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-14
	24PN151	Private	historic dump	not eligible	no effect	avoid by design	Fig. 5-14
	24PN154	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-14
Neyehuis H.S.	24PN149	Private	homestead	eligible - A, C (consultant)	no adverse effect	avoidance of surface features	Fig. 5-14
	24PN155	Private	historic graffiti	not eligible	no effect	avoid by design	Fig. 5-14
Belgian Hill	24PN156	Private	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-15
	24PN157	Private	historic structure	not eligible	no effect	avoid by design	Fig. 5-15
Sam George Hill	24PN150	State and Private	tipi rings	unevaluated	no adverse effect	avoidance of surface features	Fig. 5-17
Banka Site	24PN148	Private	tipi rings	unevaluated	no adverse effect	avoidance of surface features	Fig. 5-18
	24PN158	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-18
	24PN159	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-18
	24TT574	Private	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-20
	24TT575	Private	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-20
	24TT576	Private	tipi ring	unevaluated	no adverse effect	avoid by design	Fig. 5-20
	24TT577	Private	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-20
	24TT578	State	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-21
Black Horse	24CA1053	Private	tipi rings	unevaluated	no adverse effect	avoid by design	Fig. 5-27

Table 7-2. Summary of Previously Recorded Sites in the APE

Site Name	Site Number	Surface Owner	Site Type Type	NRHP Status	Effect to Site	Management Status	Map Figure
GN railroad	24GL191	private	historic railroad	eligible - A	no adverse effect	avoidance of surface features	Fig. 5-6
	24GL587	BLM and private	bison kill	unresolved / unevaluated	no adverse effect	avoid by design	Fig. 5-10
30 Knot Site	24PN24	State and private	cairns, tipi rings & alignments	eligible - D (consensus)	no adverse effect	avoidance of surface features	Fig. 5-10
	24PN34	multiple	historic travel rte	unresolved / unevaluated	no adverse effect	avoidance of surface features	Fig. 4-15
Fortification (aka)	24PN147 24PN5	private	prehistoric structure	eligible - D (consultant)	no adverse effect	avoid by design	Fig. 5-14
L Canal	24PN83	private	irrigation canal	eligible - A (consensus)	no adverse effect	avoidance of surface features	Figs. 4-13, 5-15
L2 Canal	24PN88	private	irrigation canal	eligible - A (consensus)	no adverse effect	avoidance of surface features	Figs. 4-13
AN Canal	24PN109	private	irrigation canal	eligible - A (consensus)	no adverse effect	avoidance of surface features	Figs. 4-12, 5-15
P Canal	24PN111	private	irrigation canal	eligible - A (consensus)	no adverse effect	avoidance of surface features	Figs. 4-14. 5-12
Sleeping Site	24PN112	private	tipi rings campsite	unknown	N/A site was destroyed	no action required	Figs. 4-12, 5-13

United States Department of the Interior

FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES
MONTANA FIELD OFFICE
585 Shepard Way
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

M.09 DOE – Informal
Presidential Permit Docket No. PP-305

September 16, 2008

Anthony J. Como
Director, Permitting and Siting
U.S. Department of Energy, OE-20
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Mr. Como:

This responds to your October 17, 2008 letter, Biological Assessment (BA) and request for concurrence on your determination of effects on listed species from the construction of an international transmission line. This response is provided by the U.S. Fish and Wildlife Service (USFWS) under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4327), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543.

Montana Alberta Tie Line, Ltd. (MATL) applied to the Department of Energy (DOE) for a Presidential Permit to construct a single-circuit, 230,000-volt (230-kV) transmission line that would originate at a new substation to be constructed northeast of Lethbridge, Alberta, Canada, cross the United States (U.S.)-Canada international border north of Cut Bank, Montana, and extend approximately 125 miles into the United States, terminating at an existing substation north of Great Falls, Montana. The DOE has the responsibility for implementing Executive Order (E.O.) 10485 (September 9, 1953), as amended by E.O. 12038 (February 7, 1978), which requires the issuance of a Presidential Permit for the construction, operation, maintenance, and connection of electric transmission facilities at the United States international border.

The USFWS concurs with your determination that your project may affect, but will not adversely affect, the threatened bald eagle (*Haliaeetus leucocephalus*) and will have no affect on the endangered black-footed ferret (*Mustela nigripes*). This concurrence is based upon the mitigation and conservation measures in the BA.

This concludes informal consultation pursuant to regulations in 50 CFR 402.13 implementing the Endangered Species Act of 1973, as amended. This project should be re-analyzed if new information reveals effects of the action that may affect threatened, endangered or proposed

species, if the project is modified in a manner that causes an effect not considered in this consultation, or if the monitoring requirements will not be implemented.

For future inquiries on consultation, please call Lou Hanebury at our Billings Sub Office at 406-247-7367.

Sincerely,

R. Mark Wilson
Field Supervisor

cc:
FWS, Billings Sub Office, Billings, MT (Attn: Lou Hanebury)
MTDEQ, Helena, MT (Attn: Tom Ring)

LRH/kae/08-28-08/2008 08_27 LTR wilson_como_MATL__concurrence.doc

** SURNAME SLIP **
FOR CORRESPONDENCE REQUIRING
FIELD SUPERVISOR SIGNATURE

AUTHOR: Lou Hanebury

FILE #: _____

Montana Alberta Tie Line
Presidential Permit Docket No. PP-305
61130-2007-FA-0085
61130-2007-SL-0171

REVIEWER(S): _____ _____

ASST. FIELD SUPERVISOR: _____

SPECIAL INSTRUCTIONS:

Tom Ring
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT.59620
tring@mt.gov

APPENDIX Q:
CONTRACTOR DISCLOSURE STATEMENT

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF THE ENVIRONMENTAL IMPACT STATEMENT FOR THE MONTANA ALBERTA TIE LTD. (MATL) 230-kV TRANSMISSION LINE

CEQ Regulations at 40 CFR 1506.5(c), which have been adopted by the DOE (10 CFR 1021), require contractors who will prepare an EIS to execute a disclosure specifying that they have no financial or other interest in the outcome of the project. The term "financial interest or other interest in the outcome of the project" for purposes of this disclosure is defined in the March 23, 1981 guidance "Forty Most Asked Questions Concerning CEQ's National Environment Policy Act Regulations," 46 FR 8026-18038 at Question 17a and b.

"Financial or other interest in the outcome of the project" includes "any financial benefit such as a promise of future construction or design work in the project, as well as indirect benefits the contractor is aware of (e.g., if the project would aid proposals sponsored by the firm's other clients)." 46 FR 18026-18038 at 18031.

In accordance with these requirements, the offeror and any proposed subcontractors hereby certify as follows: (check either (s) or (b)),

(a) X Offeror and any subcontractor have no financial or other interest in the outcome of the project.

(b) _____ Offeror and any subcontractor have the following financial or other interest in the outcome of the project and hereby agree to divest themselves of such interest.

Financial or Other Interests

1.

2.

3.

Certified by:

J. Edward Surbrugg

Signature

J. Edward Surbrugg
Helena Office Manager
Printed Name and Title

Tetra Tech EM Inc.
Company

September 9, 2008
Date

Draft
ENVIRONMENTAL IMPACT STATEMENT
for the
Montana Alberta Tie Ltd. (MATL)
230-kV Transmission Line

March 2007



State of Montana
Department of Environmental Quality



United States
Department of Energy

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Executive Summary

Introduction

This document is both a Montana State draft environmental impact statement (EIS) and a federal environmental assessment (EA) and has been prepared for the United States portion of the proposed Montana Alberta Tie Ltd. (MATL) transmission line. Because of the similarities of their environmental reviews, and to reduce the burden and expense of preparing separate documents, Montana and the U.S. Department of Energy have cooperated in the preparation of this single environmental document. The project considered in this document is an international 240/230-kilovolt (kV) alternating current merchant (private) transmission line that would originate at an existing NorthWestern Energy (NWE) 230-kV switch yard near Rainbow Dam at Great Falls, Montana, and extend north to a new substation to be constructed northeast of Lethbridge, Alberta, crossing the U.S.-Canada international border north of Cut Bank, Montana. Approximately 130 miles of the 203-mile transmission line are proposed to be constructed in the U.S. The line would be owned by MATL, a private Canadian corporation owned by Tonbridge Power. The proposed line would be part of the Western Interconnection (western grid), and a phase shifting transformer would be installed at the substation near Lethbridge to control the direction of power flows on the line.

MATL has submitted an application for a certificate of compliance (certificate) to the Montana Department of Environmental Quality (DEQ) under the Montana Major Facility Siting Act (MFSA)(75-20-101, et seq., Montana Code Annotated [MCA]). This application addresses the portion of the transmission line between Great Falls and the border between the U.S. and Canada. MATL has applied to the U.S. Department of Energy (DOE) for a Presidential permit (permit) to construct, operate, maintain and connect facilities for the transmission of electric energy at the U.S.-Canada international border. **Figure ES-1** provides a map showing the location of the proposed facility and alternatives.

In response to the application for a certificate, DEQ must prepare a report and may conduct an environmental review and approve the proposed project before construction may begin. These reviews are required by the Montana Environmental Policy Act (MEPA) and MFSA. The DOE action also requires an environmental review conducted in accordance with the National Environmental Policy Act (NEPA). Further information on the regulatory requirements and responsibilities is included in Section 1.4 of the EIS.

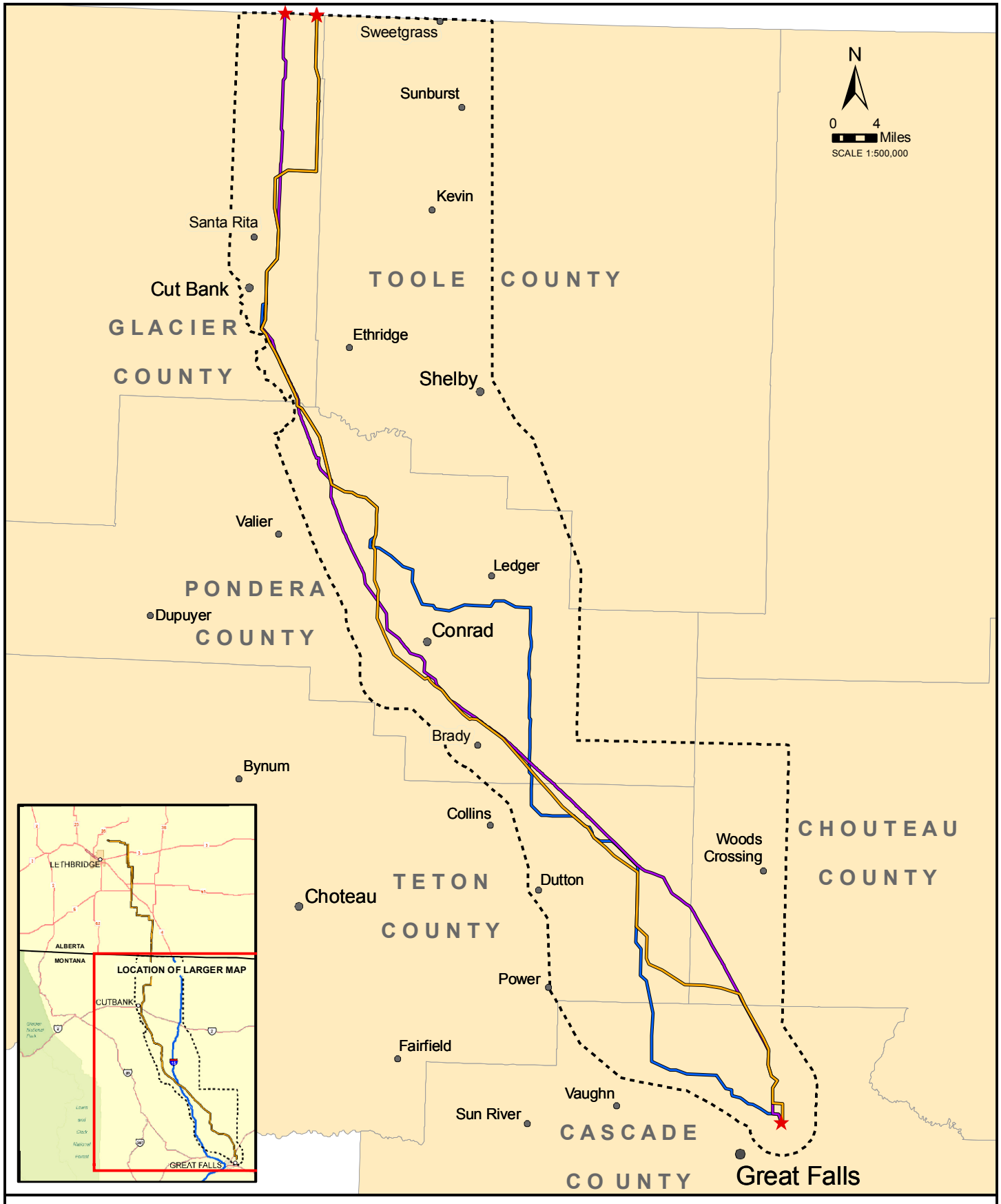


FIGURE ES-1
PROJECT STUDY AREA

LEGEND

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE FigSum1_MATL_Project_Study_Area_022107_JA.mxd

Executive Summary

Purpose and Benefits of the Montana-Alberta Tie Transmission Line Project

This section describes the purpose and benefit of the proposed action to the State of Montana as required under MEPA and MFSA (Section 1.2.1). This section also addresses purpose and need for the federal action and purpose and benefit to the applicant (Section 1.2.2) and the need for the facility (Section 1.2.3). DEQ must make several findings, including a finding of need, before a certificate can be issued under MFSA. Under MFSA, consideration must be given to the benefits of the project to the applicant and to the state.

Purpose and Benefit to the State of Montana

The purpose of issuing a certificate of compliance and a Presidential permit for the proposed MATL transmission line is to allow MATL to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists). This region of Montana has a high potential for development of wind resources. A connection could provide access to markets for new wind generation facilities in the vicinity of the proposed transmission line and improve transmission access to markets seeking new energy resources. Expected benefits of the proposed Project are summarized below and examined in detail in Section 3.16.

Benefits to Electricity Generators and Consumers in Montana

The proposed transmission line would have the capacity to carry up to 300 MW north and 300 MW south for a total capacity of up to 600 MW. However, due to constraints on the current system where MATL would tie in at Great Falls, the full capacity of 300 MW to the south would not be realized unless additional upgrades are made. The added capacity from MATL could support a modest increase in new power generation in Montana. While larger amounts of new generation would need more transmission capacity, the construction and operation of the proposed Project would provide opportunities for development of smaller energy generation projects, such as wind energy, in Montana. If the proposed transmission line is approved, MATL will have already sold most of the total capacity of the line to potential wind farms before construction begins. Information regarding energy generation companies already contracted with MATL is provided in Section 2.6.

Additional expected benefits to Montana generators and consumers include: additional connection with markets that demand energy; additional wholesale electricity purchasing options for Montana utilities, which could result in lower rates due to an increase in supplier competition; and increased opportunities for western grid system optimization during high Montana export and low Alberta-BC export scenarios.

Benefits to Existing Transmission Systems

A modified transmission system, including a tie line between Montana and Alberta, may also result in benefits to transmission system operators whose service areas include Montana and to utilities that provide transmission service within the state. A modified transmission system could provide more options for power routing within Montana, increase energy transactions between Montana and Alberta, and allow for easier balancing of energy surpluses and shortages within and between balancing authority areas. Because tie lines are able to connect with adjacent electric systems, different generation resources can combine to provide a level of reliability that one jurisdiction could not otherwise afford if that jurisdiction had to cover the same resources independently. The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NorthWestern Energy, to obtain regulating reserves for its transmission system control area.

Benefits as Stated by the Applicant

The MATL transmission line is a merchant line the primary purpose of which is to financially benefit the owner/operators. The MATL application for certification described the following benefits to MATL, the U.S., and Canada (MATL 2006b):

> *The Project would be the United States' first power transmission interconnection with Alberta and is expected to facilitate development of additional sources of generation (e.g., windfarms both in northern Montana, and southern Alberta), and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the Project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.*

In addition, MATL asserts that system stability studies conducted under the direction of the Western Electricity Coordinating Council Peer Review Group indicate that the proposed Project would not adversely affect transmission system stability (Tonbridge Power, Inc. 2007).

Need for the Facility

The need for this line is the additional transfer capacity it would provide, if built. This line would directly connect Montana and Alberta's regional operating transmission systems, and would allow power to flow directly between these two systems where there is no current connection.

Because Montana makes more electricity than it consumes, to be economically viable, any new generation resources in Montana must offer competitive pricing and have

adequate transmission access to compete in out-of-state markets or replace an existing supplier choosing to take higher profits by selling out of state (DEQ 2004). Either way, additional transmission capacity is not needed to serve Montana customers, but it is essential for the viability of new generation enterprises (DEQ 2004).

This line could support a modest increase of new electricity generators, such as wind, in the study area by connecting them to regional grids and thus potentially to electricity markets. The MATL transmission line is proposed to be capable of shipping up to 300 MW north and 300 MW south. The amount of new generation that would be able to be shipped south into Montana by MATL is currently unknown due to potential transmission constraints south of Great Falls, which is the southern terminus of MATL. To the extent that southerly electrical flows on MATL are constrained, this would reduce MATL's ability to meet the need for increased capacity. It also may result in more electricity flowing north from Montana into Alberta than from Alberta to Montana.

Issues Identified During Scoping

DOE issued a "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Montana Alberta Tie, Ltd." in the *Federal Register* on November 18, 2005 (70 FR 69962). In addition, DOE mailed a copy of the notice, using Montana land ownership records, to each owner of land on the MATL-proposed corridor.

DEQ and DOE hosted four public meetings in December 2005 and June 2006 at which time the public was asked to identify issues and concerns to be addressed during the review. During each meeting, MATL and DEQ representatives presented briefings. Maps and other information were available for review, and representatives from each agency were available to discuss the project, answer questions, and receive public comments.

Meeting dates and locations are listed below:

- Conrad on Monday, December 5, 2005, at Norley Hall,
- Great Falls on Tuesday, December 6, 2005, at the Great Falls Civic Center,
- Cut Bank on Wednesday, December 7, 2005, at the Glacier County Voting Center, and
- Cut Bank on Monday, June 26, 2006, at the Cut Bank Civic Center.

Additionally, throughout the scoping process, stakeholders expressed their concerns via letters, phone calls, and emails.

Other agencies having interest or responsibility in the project approval process include: Montana Fish, Wildlife and Parks, Montana State Historic Preservation Office (SHPO), Montana Department of Natural Resources and Conservation, U.S. Department of Agriculture Farm Services Administration, U.S. Bureau of Land Management, and U.S. Fish and Wildlife Service.

Based on comments received from participating agencies and the public, ten issues and concerns were identified. These issues are (1) impacts on farming, ranching, and other land uses, (2) impacts on protected, threatened, endangered, and sensitive animal and plant species and their critical habitats (3) impacts on floodplains and wetlands, (4) avian mortality, (5) impacts on cultural and historic resources, (6) impacts on human health and safety, (7) impacts on air, soil, and water, (8) visual impacts, (9) socioeconomic impacts, and (10) impacts from development of wind generation projects.

Alternatives Description

A complete discussion of how alternatives were developed, alternatives considered but dismissed from full analysis, and complete descriptions of the four alternatives considered for detailed analysis is provided in Chapter 2. A summary of the four alternatives is presented below. Alternatives considered but dismissed are also listed below.

Alternative 1 — No Action

Under Alternative 1, the proposed Project would not be approved or implemented. Existing electrical transmission service in north-central Montana would be maintained and operated at its current level. In addition, plans to construct new generation facilities, primarily wind, in the analysis area would likely not be realized.

Alternative 2 — Proposed Action

Alternative 2 is to construct and operate a 230-kV merchant power line between Great Falls, Montana and Lethbridge, Alberta as described in MATL's application to DEQ (MATL 2006b) and its application for a Presidential permit before DOE. The Alternative 2 proposed alignment is 129.9 miles long and extends from the 230-kV Great Falls switch yard north of Great Falls to a proposed new substation near Cut Bank, and extend north to the Montana-Canada border at the western edge of the Red Creek Oil Field. The transmission line would be built using H-frame structures.

Alternative 3 – MATL B

Alternative 3 would be 121.6 miles long and would be similar to Alternative 2 in that the width of the right of way, pole design, types of access roads, implementation, structures, conductors, markers, substations, construction, operations, maintenance, and potential environmental protection measures would be the same as those described

for Alternative 2. The Alternative 3 alignment would be different from Alternative 2 in that it would generally parallel an existing 115-kV transmission line along the entire route from the Great Falls switch yard to a substation near Cut Bank. Alternative 3 was designed by MATL based on a single preferred location MFSA siting criterion that recommends paralleling existing utility corridors (Circular MFSA-1, section 3.1). This alternative alignment was not intended to address potential land use issues or maintenance issues.

Alternative 4 – Agency-Developed

Alternative 4 was developed by DEQ within MATL's study area to address concerns raised by the public and interested agencies during the scoping period. Issues of concern that helped shape Alternative 4 are: potential adverse impacts to farmers from diagonal crossings of farm fields using H-frame structures, limitations on private property use due to crossings on private land and disturbance of visual resources. The alignment under Alternative 4 would be 139.6 miles long and would be generally constructed along field boundaries and where diagonal crossings could impact farming practices or other private land use. Public land was used when its use would be as economically practicable as the use of nearby private land. Alternative 4 also includes additional environmental protection measures recommended but not required under Alternatives 2 and 3. The use of monopoles would be required where the line would cross cropland and Conservation Reserve Program (CRP) land. The width of the right of way, project implementation, conductors, markers, substations, types of access roads, construction, operations, and maintenance would be the same as Alternatives 2 and 3.

Alternatives Considered But Dismissed

Several alignment and construction-detail alternatives were considered but eliminated from detailed study.

- Many local realignment options
- MATL C alignment
- Building the line underground
- Unguyed, self-supporting angle and dead-end structures
- Requiring the use of helicopters to string the line
- Requiring monopole structures in all areas
- Cut Bank to Shelby alternatives
- NWE 115-kV transmission line rebuild alternative

Affected Environment

The 1,444,790 acre Project study area contains sparsely populated semi-arid rolling hills, gentle ridges, and plateaus bisected by alluvial corridors of the Marias and Teton rivers and their tributaries. The area has low topographic relief with elevations ranging from 4,372 feet above sea level in the northwest corner of the study area to about 3,016 feet above sea level on the Missouri River in the southeast corner of the area. Winters are extremely cold with desiccating winds and snow. May and June are the wettest months; however, perennial streams and rivers are sustained primarily from moisture derived from mountain snowpack.

The bedrock geologic units are primarily glaciated Cretaceous shales and sandstones (MATL 2006b). This region includes portions of eight hydrologic subbasins in Montana, all of which contribute to the lower Missouri River Basin. The primary surface water features in the analysis area are Cut Bank Creek, the Marias River and the Dry Fork Marias River, Pondera Coulee, the Teton River, Benton Lake, Hay Lake, and the Missouri River. Isolated prairie potholes, lakes, and stock reservoirs are scattered throughout the analysis area.

The majority of the land (90 percent) is privately owned, with the remainder being owned or managed by state, federal, and local government agencies. Over 88 percent of the Project study area is considered agricultural lands, including irrigated and non-irrigated cropland and rangeland. Some dry land crops and grazing occur on state and federal lands. Management of agricultural lands includes the use of GPS guided tractors, sprayers, and combines, and irrigation equipment, and aerial and ground based spraying, mechanical plowing, seeding, fertilizing, and harvesting. These activities occur on 73 percent of the Project study area. This agricultural land base gives the landscape its characteristic and dominant patterns of linear strips of dryland cultivation and circular and rectangular shapes associated with irrigated fields. Portions of Cascade, Chouteau, Glacier, Pondera, Teton, and Toole counties are in the Project study area.

Numerous oil and gas fields are located within the northern portion of the analysis area. Pipelines between 8 and 20 inches in diameter occur within or traverse the Project study area including gathering system main lines and transmission/trunk lines. Existing electric and magnetic field (EMF) levels in the project vicinity are primarily dominated by EMF from common household appliances. Existing transmission and distribution lines also contribute to EMF levels.

Comparison of Alternatives and Impacts

Table ES-1 summarizes potential impacts from the proposed Project and action alternatives to land use, geology, soils, safety, hazardous material management, electric and magnetic fields, water, wetlands, vegetation, wildlife, fish, special status species, air quality, noise, socioeconomics, paleontological resources, cultural resources, visual resources, and the existing transmission system.

Under Alternative 1, the no action alternative, the proposed 230-kV transmission line would not be built, and the impacts described in **Table ES-1** would not occur.

TABLE ES-1
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Land Use – General Impacts	Potential impact compared to other alternatives depends on length of alignment in general, and length on cropland.	Potential impact compared to other alternatives depends on length of alignment in general, and length on cropland.	Potential impact compared to other alternatives depends on length of alignment in general, and length on cropland.	Loss of production due to structures and roads, increased risk of weed introduction and spread, risk of equipment damage from hitting a structure, increased time to farm around poles, and some GPS-guided equipment may be affected. Cropland crossings also increase the risk of crop duster accidents.
Land Use – General Impacts	Similar for all alternatives	Similar for all alternatives	Similar for all alternatives	During construction, facility construction traffic may conflict with movement of farm equipment on roads.
Land Use- Total Amount of Land Crossed	129.9 miles	121.6 miles	139.6 miles	Alt 3 would disturb the least amount of land. Alt 4 would disturb the most.
Land Use – Total Cropland crossed	92.7 miles	97.7 miles	87.9 miles	Alt 4 crosses the least cropland. Alt 3 crosses the most cropland.
Land Use – Total Cropland Crossed Diagonally	52.9 miles	70.4 miles	27.1 miles	Alt 4 crosses the least cropland diagonally. Alt 3 crosses the most diagonally.
Land Use – Guaranteed Use of Monopoles On Cropland	No	No	Yes	Alt 4 requires the use of monopoles for crossing all cropland, Alts 2 nd 3 would use monopoles at the discretion of MATL.
Land Use –Special Management Areas Crossed	11.2 miles	6.4 miles	11.2 miles	Alt 3 would cross the least amount of special management areas. Alt 4 would avoid the Great Falls Shooting Sports Complex
Land Use – Conservation Easements Crossed	23.6 miles	18.1 miles	32.5 miles	Alt 3 would cross the least amount of conservation easements. Alt 4 would cross the most.
Land Use – Proximity to Residences	1 residential development within 100 feet of alignment.	4 residential developments within 100 feet.	1 residential dev. within 100 feet of alignment.	Alts 2 and 4 have the fewest residential developments close to the alignment.

TABLE ES-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Land Use – Length of 500-foot-wide Alignment Buffer Zone Within 100 feet of a Pipeline	7.0 miles	23.7 miles	5.7 miles	Alt 4 has the least amount of the 500-foot alignment buffer zone near pipelines. Alt 3 contains the greatest length of alignment near pipelines.
Land Use – Impacts to Roads and Road Use	Increased traffic on roads during construction resulting in occasional conflicts with farm machinery.	Same as Alternative 2	Same as Alternative 2	All alternatives have similar impacts.
Geology – Miles on Soil and Geologic Resources Prone to Mass Movement	9 miles	3 miles	20 miles	Alt 3 would have the least risk of causing mass movement that could result in pole instability. Alt 4 presents the greatest risk.
Soils – Miles on Unstable Soils	10 miles	12 miles	24 miles	Alt 2 would have the least risk of soil erosion. Alt 4 presents the greatest risk. Soil erosion impacts can be mitigated under all alternatives.
Engineering	No adverse impact to structural reliability is anticipated	Same as Alt 2	Same as Alt 2	All facilities are proposed to be constructed in compliance with accepted engineering standards.
Hazardous Materials	No impact to resources from hazardous materials is anticipated	Same as Alt 2	Same as Alt 2	MATL proposes to manage and transport hazardous materials and wastes in accordance with State and federal requirements.
EMF – Exposure Levels	No impact	Same as Alt 2	Same as Alt 2	Exposure levels would not exceed state standards for electric fields.
EMF – Radio or TV Interference	No impact	Same as Alt 2	Same as Alt 2	No alternative is expected to interfere with radio or TV reception.

TABLE ES-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Water – General Impacts	Potential impact compared to other alternatives is dependent on number of river crossings.	Potential impact compared to other alternatives is dependent on number of river crossings.	Potential impact compared to other alternatives is dependent on number of river crossings.	Minor short-term adverse impacts to surface water quality could occur by temporarily increasing sources of sediment from the time of construction to reclamation completion. This impact would be mitigated if water and riparian areas are undisturbed or measures to reduce sediment transport are installed.
Water – Potential Number of Perennial Stream or River Crossings	10	6	17.	Alt 3 poses the lowest risk and Alt 4 poses the highest risk of contributing sediment to streams based on number of stream crossings.
Water – Potential Number of Lake Crossings	4	6	2.	
Wetlands - General	Potential impact compared to other alternatives is dependent on acres of crossed wetlands	Potential impact compared to other alternatives is dependent on acres of crossed wetlands	Potential impact compared to other alternatives is dependent on acres of crossed wetlands.	Construction disturbance could result in a change in wetland plant community if wetland hydrology is altered. This impact would be mitigated if wetlands were undisturbed during construction and maintenance.
Wetlands – Total Wetlands and Potential Wetlands Crossed	67.6 acres	62.3 acres	76.4 acres	Alt 3 crosses the least amount of ground that contains wetlands and potential wetlands. Alt 4 crosses the greatest amount of wetlands and potential wetlands.
Vegetation - General	Potential impact compared to other alternatives depends on acres of disturbed native vegetation	Potential impact compared to other alternatives depends on acres of disturbed native vegetation.	Potential impact compared to other alternatives depends on acres of disturbed native vegetation.	Temporary loss of vegetation and increased risk of weed emergence and dispersion in disturbed areas until reclaimed.
Vegetation – Potential loss during construction	38 acres	41 acres	48 acres	Alt 2 would disturb the least amount of native vegetation; Alt 4 would disturb the largest acreage.

TABLE ES-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Wildlife - General	Impacts greatest for birds and animals with low mobility.	Same as Alt 2	Same as Alt 2	Short-term impacts include loss of individuals during construction or direct disturbance of species during critical periods in their life-cycles. Long-term impacts include habitat alterations, electrocutions, and collisions. Impacts would be similar for all alternatives.
Wildlife- Crosses Mule Deer Habitat	19 miles	10 miles	28 miles	Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.
Wildlife – Birds	Collisions with transmission line could result in bird loss. Portions of the line located near wetlands and the Benton Lake National Wildlife Refuge would experience bird collisions.	Because the line length and location are similar to the existing 115-kV line in Alt 1 (within 1% difference) and both pass near wetlands and the Benton Lake National Wildlife Refuge, impacts to wildlife would be similar to Alt 2.	Same as Alt 3	Bird collision potential is similar for all alternatives.
Fish – Expected Impacts to Water Quality	10 perennial river or stream crossings	6 perennial river or stream crossings	17 perennial river or stream crossings	Alt 3 poses the lowest risk of affecting fish habitat by contributing sediment to streams based on the number of stream crossings.
Special Status Species - Vegetation	All known occurrences are located outside the study area	Same as Alt 2	Same as Alt 2	Risk to vegetation special status species is based on risk to its habitat (wetlands). Alt 3 has the least likelihood of affecting vegetation species of concern because the alignment crosses less riparian habitat than Alts 2 and 4.
Special Status Species – Wildlife Habitat	19.9 miles	11.3 miles	11.7 miles	Alts 3 and 4 would cross the least amount of habitat type used by special status species wildlife.

TABLE ES-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Air Quality - General	Some localized short-term emissions of particulate matter would occur during construction.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Audible Noise - General	Short-term, localized construction noise. Noise from rain or wind on the transmission line would be below BPA and HUD guidelines.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Social Resources	Increased short-term construction and long-term maintenance employment opportunities	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics – Short Term	Short-term construction-related employment would be available.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics - Counties	Long-term operation and maintenance employment would be available. County and State tax revenues would increase.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics - State	Opportunities to export electric power would increase. Increased competition may reduce cost to ratepayers. Creation of opportunities to start up wind generation facilities.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact

TABLE ES-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Paleontological Resources – Miles of Geologic Units Crossed With a High Probability of Containing Fossils.	51.6 miles	44.3 miles	44.6 miles	Alt 3 would cross the fewest miles having a surface expression of the Two Medicine Formation, which has a high probability of containing fossils. Alt 2 would cross the most miles over the Two Medicine Formation.
Cultural Resources- Number of Cultural Resources Crossed	Crosses 6 sites eligible for the NRHP and 13 sites of undetermined eligibility.	Crosses 7 sites eligible for the NRHP and 9 sites of undetermined eligibility.	Crosses 3 sites eligible for the NRHP and 20 sites of undetermined eligibility.	Alt 3 would pose a risk to the lowest number of cultural resource sites. Alt 4 would pose a risk to the greatest number of cultural resource sites.
Visuals - General	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Decline in aesthetic quality of a view shed, visual contrast or landscape change due to contrast with natural landscape.
Visuals – Residences within ¼ mile	17 residences	23 residences	22 residences	Alt 2 would be visible from the fewest residences within ¼ mile. Alts 3 and 4 would have similar proximity to residences.
Visuals – Number of Residences ¼ - ½ Mile	60 residences	71 residences	45 residences	Alt 4 would be visible from the fewest residences within ¼ to ½ mile. Alt 3 would be visible from the most residences.
Visuals – Within ½ mile from a Travel Corridor	6.1 miles	7.6 miles	5.0 miles	Alt 4 would be visible from the shortest length of a travel corridor within ½ mile. Alt 3 would have the longest visibility.

Notes:

Alt	Alternative	BPA	Bonneville Power Administration
EMF	Electric and Magnetic Field	EPA	U.S. Environmental Protection Agency
Est	estimated	GPS	Global Positioning System
HUD	U.S. Housing and Urban Development	L & C	Lewis and Clark County
NRHP	National Register of Historic Places	TV	Television

1.0 Purpose and Benefit of the Proposed Action

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In response to the application for a certificate, DEQ must conduct an environmental review and approve the proposed project before construction may begin. This review is required by the Montana Environmental Policy Act (MEPA) and MFSA. The DOE action also requires an environmental review conducted in accordance with the National Environmental Policy Act (NEPA). Further information on the regulatory requirements and responsibilities is included in Section 1.4.

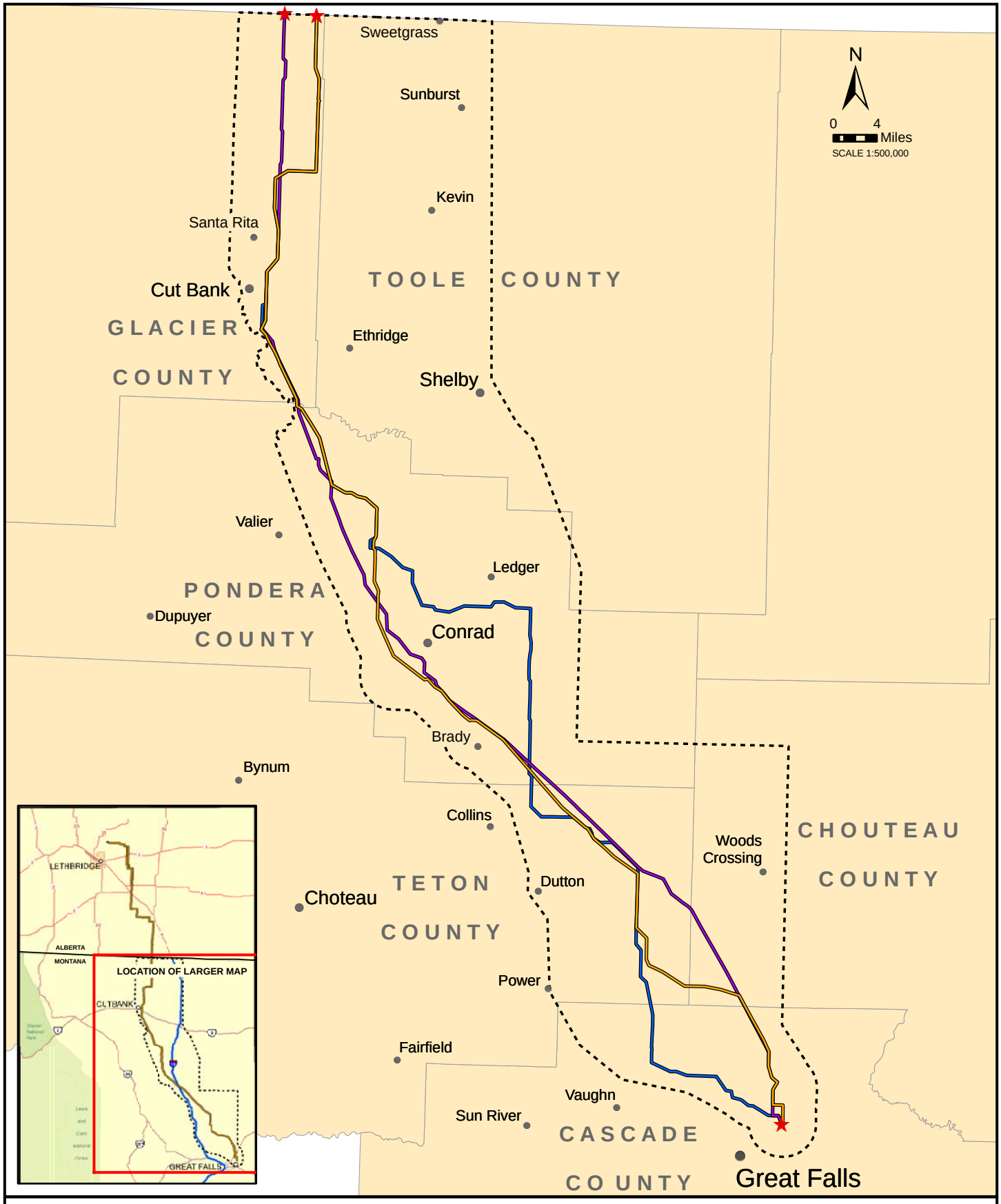


FIGURE 1.1-1
PROJECT STUDY AREA

LEGEND

- ALT2 - ALIGNMENT
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NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig1_1-1_MATL_Project_Study_Area_020107_JA.mxd

General DOE Requirements

The Department of Energy has the responsibility for implementing Executive Order (E.O.) 10485 (September 9, 1953), as amended by E.O. 12038 (February 7, 1978), which requires the issuance of a Presidential permit for the construction, operation, maintenance, and connection of electric transmission facilities at the United States international border. DOE may issue the permit if it determines that the project is in the public interest, and after obtaining favorable recommendations from the U.S. Departments of State and Defense. The criteria used by DOE to determine if a proposed project is consistent with the public interest are:

1. Assessment of potential environmental impacts in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality and DOE implementing regulations at 40 CFR §§ 1500-1508 and 10 CFR§ 1021, respectively;
2. Assessment of the project's impact on electric reliability, that is, ascertaining whether the proposed project would adversely affect the operation of the U.S. electric power supply system under normal and contingency conditions, and any other fact on the operating reliability of the U.S. electric supply system; and,
3. Any other factors that DOE may consider relevant to the public interest.

General MEPA and MFSA Requirements

Under MEPA, DEQ must state the purpose and benefit of the permitting action by addressing each item listed below. Each item is followed by the corresponding section in which it is addressed (Mundinger et al 2006):

- Explain the benefits and purpose of the proposed action (Section 1.2);
- Explain the decision(s) that must be made regarding the proposed action (Section 1.3);
- Describe any other environmental review documents that influence or supplement the EIS (Section 1.3);
- List other local, state, or federal agencies that have overlapping or additional jurisdiction or responsibility for the proposed action (Section 1.4);
- List all necessary permits and licenses (Section 1.4); and
- Describe the concerns and issues that have been generated through public and agency comments (Section 1.5).

This section also briefly describes alternatives to the proposed action (Section 1.3.1). Terms used throughout the EIS to describe different aspects of the study area and units of electricity transmission are defined in Section 1.7. MATL's proposed Project and alternatives to the Project are presented in Chapter 2, along with reasonably foreseeable actions and alternatives considered but dismissed. Chapter 3 presents the affected

environment and impacts analysis. Cumulative impacts, unavoidable adverse impacts, and irreversible and irretrievable impacts are presented in Chapter 4. Consultation and coordination with other agencies and interested groups is presented in Chapter 5. The list of people who prepared this document is presented in Chapter 6. Chapter 7 presents a glossary and acronym list. Chapter 8 is reserved for responses to public comments on the draft EIS. And references are presented in Chapter 9.

Appendices follow the references and include:

Appendix A — DEQ Eight Local Realignment Segments Preliminary Analysis
Appendix B — Types of H-frame Structures
Appendix C — MATL Noxious Weed Control Plan
Appendix D — Draft MATL Reclamation & Revegetation Plan
Appendix E — Description of Drainages and Wetland Areas That Would Be Avoided
Appendix F — Draft DEQ Environmental Specifications
Appendix G — Alternatives Considered But Dismissed by MATL
Appendix H — Land Use Types By Milepost
Appendix I — Impaired River Segments Summary Sheets
Appendix J — Summary of Surface Water Resources and Water Quality in the Analysis Area
Appendix K — Priority Pollutant Monitoring Data
Appendix L — Photographic Simulations
Appendix M — MATL System Impact Study (SIS) Stand-Alone and Co-existing

1.1 Project Background

The North American transmission grid moves electricity from power generating facilities to customers using a transmission system coordinated by the North American Electric Reliability Council (NERC). Members of NERC are investor-owned utilities, federal power agencies, rural electric cooperatives, state, municipal and provincial utilities, independent power producers, power marketers, and end-use customers (NERC 2006). These entities account for virtually all the electricity supplied and used in the U.S., Canada, and a portion of Baja California, Mexico (**Figure 1.1-2**).

Montana is located primarily within the western grid under the authority of the Western Electricity Coordinating Council (WECC). By design, the western grid system is weakly tied to the eastern portion of the North American system. There is currently no direct high voltage power transmission connection between Alberta and Montana (**Figure 1.1-2**).

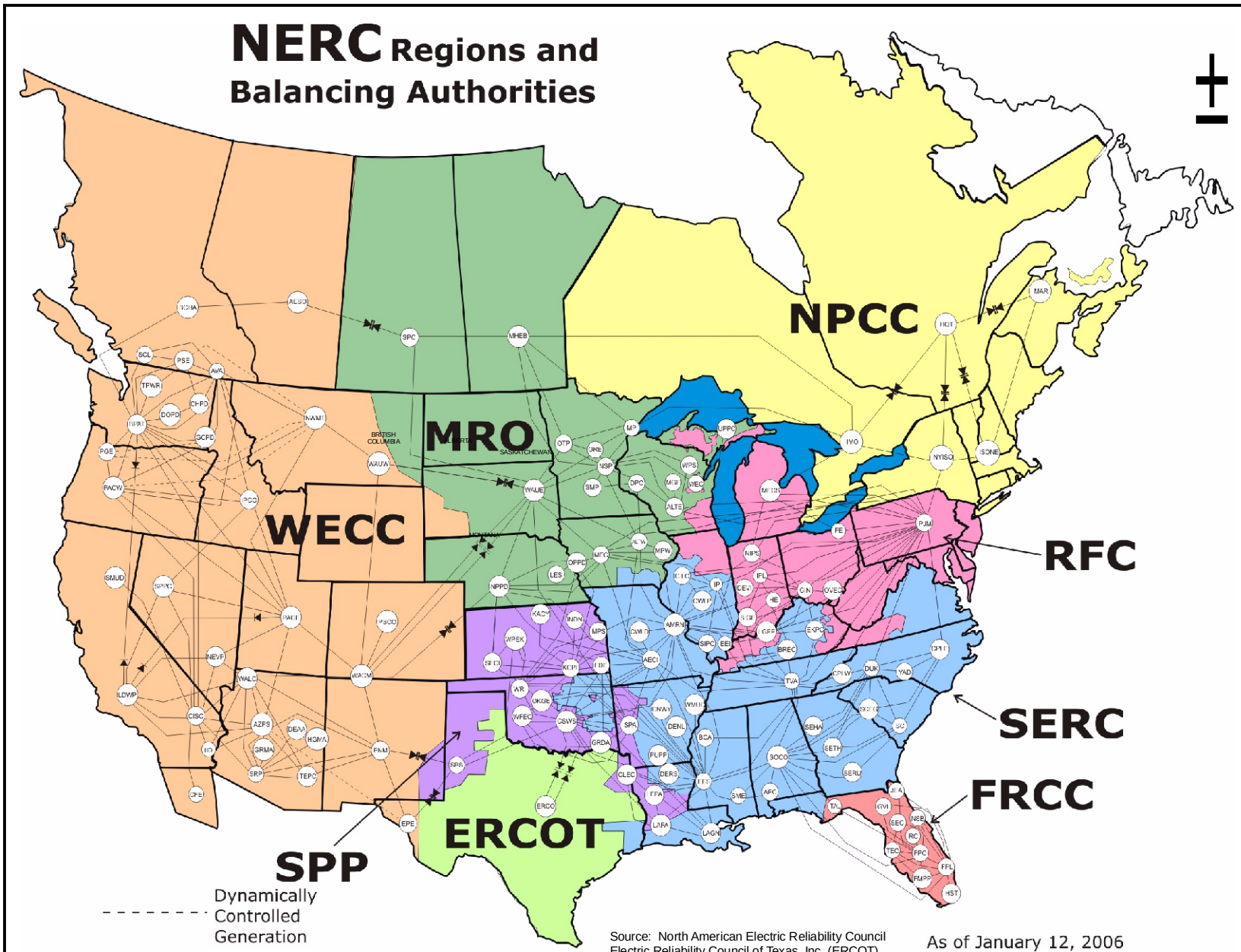


FIGURE 1.1-2
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL REGIONS AND BALANCING AUTHORITIES

GIS map by Ed Madej - TTEMI-HE
Fig1_1-2_MATL_NERC_Regions_020107_JA.mxd

To ensure reliable electrical transmission service, NERC authorizes "balancing authorities" in critical areas throughout the system that are responsible for maintaining load-interchange-generation balance within a balancing authority area. The WECC region contains 44 transmission operators and 35 balancing authorities (**Figure 1.1-2**). NWE and Western Area Power Administration (WAPA) are the two balancing authorities in Montana (NERC 2007). A description of the existing transmission system in Montana and Alberta, and how reliability could be affected by the Project is provided in Section 3.16.

1.2 Purpose, Benefit and Need

This section describes the purpose and benefit of the proposed action to the State of Montana as required under MEPA and MFSA (Section 1.2.1). This section also addresses purpose and need for the federal action and purpose and benefit to the applicant (Section 1.2.2) and the need for the facility (Section 1.2.3). DEQ must make several findings, including a finding of need, before a certificate can be issued under MFSA. Under MFSA, consideration must be given to the benefits of the project to the applicant and to the state.

1.2.1 Purpose and Benefit to the State of Montana

The purpose of issuing a certificate of compliance and a Presidential permit for the proposed MATL transmission line is to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists), provide access to markets for new wind generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources. Expected benefits of the proposed Project are summarized below and examined in detail in Section 3.16.

Benefits to Electricity Generators and Consumers in Montana

The proposed transmission line would have the capacity to carry up to 300 MW north and 300 MW south for a total capacity of up to 600 MW. However, due to constraints on the current system where MATL would tie in at Great Falls, the full capacity of 300 MW to the south would not be realized. The added capacity from MATL could support a modest increase in new power generation in Montana. While larger amounts of new generation would need more transmission capacity, the construction and operation of the proposed Project would provide opportunities for development of smaller energy generation projects, such as wind energy, in Montana. If the proposed transmission line is approved, MATL will have already sold most of the total capacity of the line to potential wind farms before construction begins. Information regarding energy generation companies already contracted with MATL is provided in Section 2.6.

Additional expected benefits to Montana generators and consumers include: additional connection with markets that demand energy from sustainable sources, such as electricity generated from wind power; additional wholesale electricity purchasing options for Montana utilities, which could result in lower rates due to an increase in supplier competition; and increased opportunities for western grid system optimization during high Montana export and low Alberta-BC export scenarios.

Benefits to Existing Transmission Systems

A modified transmission system, including a tie line between Montana and Alberta, may also result in benefits to transmission system operators whose service areas include Montana and to utilities that provide transmission service within the state. A modified transmission system could provide more options for power routing within Montana, increase energy transactions between Montana and Alberta, and allow for easier balancing of energy surpluses and shortages within and between balancing authority areas. Because tie lines are able to connect with adjacent electric systems, different generation resources can combine to provide a level of reliability that one jurisdiction could not otherwise afford if that jurisdiction had to cover the same resources independently. The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NorthWestern Energy, to obtain regulating reserves for its transmission system control area.

1.2.2 Benefits as Stated by the Applicant

The MATL transmission line is a merchant line the primary purpose of which is to financially benefit the owner/operators. The MATL application for certification described the following benefits to MATL, the U.S., and Canada (MATL 2006b):

> *The Project would be the United States' first power transmission interconnection with Alberta and is expected to facilitate development of additional sources of generation (e.g., windfarms both in northern Montana, and southern Alberta), and improve transmission system reliability in Montana, Alberta, and on a regional basis in both the U.S. and Canada. In addition, the Project would promote increased trade in electrical energy across the international border, and provide a transmission route to balance energy surplus/shortage situations in an efficient and economic manner.*

In addition, MATL asserts that system stability studies conducted under the direction of the WECC Peer Review Group indicate that the proposed Project would not adversely affect transmission system stability (Tonbridge Power, Inc. 2007).

1.2.3 Need for the Facility

The need for this line is the additional transfer capacity it would provide, if built. This line would directly connect Montana and Alberta's regional operating transmission systems, and would allow power to flow directly between these two systems where there is no current connection.

Because Montana makes more electricity than it consumes, to be economically viable, any new generation resources in Montana must offer competitive pricing and have adequate transmission access to compete in out-of-state markets or replace an existing supplier choosing to take higher profits by selling out of state (DEQ 2004). Either way, additional transmission capacity is not needed to serve Montana customers, but it is essential for the viability of new generation enterprises (DEQ 2004).

This line could support a modest increase of new electricity generators, such as wind, in the study area by connecting them to regional grids and thus potentially to electricity markets. The MATL transmission line is proposed to be capable of shipping up to 300 MW north and 300 MW south. The amount of new generation that would be able to be shipped south into Montana by MATL is currently unknown due to potential transmission constraints south of Great Falls, which is the southern terminus of MATL. To the extent that southerly electrical flows on MATL are constrained, this would reduce MATL's ability to meet the need for increased capacity. It also may result in more electricity flowing north from Montana into Alberta than from Alberta to Montana.

1.3 Scope of this Document

The objective of this DEQ EIS and DOE EA is to evaluate the construction and operation of the proposed MATL 230-kV transmission line (the Project) and two alternatives to the proposed actions of issuing a MFSA certificate of compliance and a DOE Presidential permit. The document also considers a "No Action" alternative, the impacts of not certificating or permitting the proposed facilities. The alternatives are described in Chapter 2. The environment that would be affected by the proposed Project and alternatives and an analysis of impacts to human health and the environment is provided in Chapter 3. Resource areas that are discussed in detail in this document are: land use, geology and soils, engineering, hazardous materials, water, wetlands, vegetation, wildlife, fish, air quality, noise, transportation, human health and electromagnetic fields, socioeconomics, visuals, cultural resources, and the transmission grid. This document also addresses preliminary findings necessary for transmission line certification in accordance with MFSA (Section 3.16).

This environmental document analyzes only those project-related facilities constructed inside the U.S. Neither the U.S. nor agencies of the State of Montana have jurisdiction over the regulation or permitting of facilities in Canada.

1.3.1 Alternatives Considered For Detailed Analysis

A discussion of how alternatives were developed, alternatives considered but dismissed from full analysis, and complete descriptions of the four alternatives considered for detailed analysis is provided in Chapter 2. A summary of the four alternatives is presented below.

Alternative 1 — No Action

Under Alternative 1, the proposed Project would not be approved or implemented. Existing electrical transmission service in north-central Montana would be maintained and operated at its current level. In addition, plans to construct new generation facilities, primarily wind, in the analysis area would likely not be realized.

Alternative 2 — Proposed Action

Alternative 2 is to construct and operate a merchant power line between Great Falls, Montana and Lethbridge, Alberta as described in MATL's application to DEQ (MATL 2006b) and its application for a Presidential permit before DOE. The Alternative 2 proposed alignment is 129.9 miles long and extend from the 230-kV Great Falls switch yard north of Great Falls to a proposed new substation near Cut Bank, and extend north to the Montana-Canada border at the western edge of the Red Creek Oil Field. The transmission line would be built using H-frame structures.

Alternative 3 – MATL B

Alternative 3 would be 121.6 miles long and would be similar to Alternative 2 in that the width of the right of way, pole design, types of access roads, implementation, structures, conductors, markers, substations, construction, operations, maintenance, and potential environmental protection measures would be the same as those described for Alternative 2. The Alternative 3 alignment would be different from Alternative 2 in that it would generally parallel an existing 115-kV transmission line along the entire route from the Great Falls switch yard to a substation near Cut Bank. Alternative 3 was designed by MATL based on a single preferred location MFSA siting criterion that recommends paralleling existing utility corridors (Circular MFSA-1, section 3.1). This alternative alignment was not intended to address potential land use issues or maintenance issues.

Alternative 4 – Agency-Developed

Alternative 4 was developed by DEQ within MATL's study area to address concerns raised by the public and interested agencies during the scoping period. Issues of concern that helped shape Alternative 4 are: potential adverse impacts to farmers from diagonal crossings of farm fields using H-frame structures, limitations on private property use due to crossings on private land and disturbance of visual resources. The alignment under Alternative 4 would be 139.6 miles long and would be generally constructed along field boundaries and where diagonal crossings could impact farming practices or other private land use. Public land was used when its use would be a economically practicable as the use of nearby private land. Alternative 4 also includes additional environmental protection measures recommended but not required under Alternatives 2 and 3. The use of monopoles would be required where the line would cross cropland and Conservation Reserve Program (CRP) land. The width of the right of way, project implementation, conductors, markers, substations, types of access roads, construction, operations, and maintenance would be the same as Alternatives 2 and 3.

1.3.2 Other Analyses Used In This Document

Portions of the environmental analysis were tiered from the *Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM 2005). This document assessed the environmental, social, and economic impacts associated with wind energy development on BLM-administered land. This analysis was used to evaluate impacts on the environment that result from the incremental impact of an action alternative when added to other reasonably foreseeable future actions such as increased wind energy development projects. The Council on Environmental Quality, an office within the Executive Office of the President of the U.S., encourages agencies to use tiering as a means to eliminate repetitive discussions.

1.4 Agency Permitting Actions and Authorities

Together, DEQ and DOE are responsible for the preparation of this environmental document. DEQ administers MFSA, MEPA, the Montana Hazardous Waste Act, the Montana Water Quality Act, and the Clean Air Act of Montana. After a certificate is issued, MFSA (75-20-401[1], MCA) would preempt all other state and local laws except those pertaining to air quality, water quality, worker health and safety, noxious weed control, and instances where the state has a property right such as on state-owned land.

The location of the proposed MATL transmission line must conform to applicable state and local laws and regulations, except where the DEQ may refuse to apply any local law or regulation if it finds that the law or regulation is unreasonably restrictive in view

of existing technology, of factors of cost or economics, or of the needs of consumers, whether located inside or outside the directly affected government subdivisions.

In addition to DEQ and DOE, other local, state, and federal agencies have jurisdiction over certain aspects of MATL's proposed project. **Table 1.4-1** provides a comprehensive listing of agencies and their respective permit/authorizing responsibilities with respect to the proposed project.

The initial step in the regulatory process is filing of the MFSA application, which is required by DEQ, under Title 75, Chapter 20, Montana Code Annotated (MCA). MATL submitted its MFSA application in December 2005. For DOE, the initial step was MATL's submission of its application for a Presidential permit on October 7, 2005 (70 FR 65891, November 1, 2005).

NEPA/MEPA Review

NEPA and MEPA require that decision makers consider the effects of their actions on the environment and on people before making a decision, and that state agencies inform the public of the decision making process and allow participation in the process. If DEQ and DOE determine that issuing a certificate or granting a Presidential permit would be in the public interest, the information contained in this document would provide a basis upon which those decisions are made. DEQ and DOE would use this information to decide which alternative(s) should be implemented and which mitigation measures, if any, would be appropriate for inclusion as a condition of the certificate or permit. DEQ will document its decision in a Record of Decision. For DOE, a decision, in the form of a Finding of No significant Impact would be made and could occur simultaneously with the issuance of a Presidential permit.

MFSA Certification

MFSA requires a certificate of compliance for development of this electric transmission lines. The purposes are to: (1) ensure the protection of the state's environmental resources; (2) ensure the consideration of socioeconomic impacts; (3) provide citizens with an opportunity to participate in facility siting decisions; and (4) establish a coordinated and efficient method for the processing of all authorizations required for regulated facilities (DEQ 2006). A summary of how the Project and alternatives would address each MFSA-required finding, including probable impacts, is provided in Section 3.17.

TABLE 1.4-1
PERMITS AND OTHER REQUIREMENTS FOR THE PROJECT

Permit[a]	Agency	Description	Authority
STATE			
Certificate of Compliance	**Montana Department of Environmental Quality**	Reviews project application, conducts reviews of project impacts, approves and coordinates other permit activities, and monitors project to determine compliance with terms of certificate.	Montana Major Facility Siting Act
Section 401 Certification	**Montana Department of Environmental Quality**	Provides review of potential adverse water quality impacts from discharges associated with dredged or fill materials in wetlands and other Waters of the U.S.	Montana Water Quality Act
318 Authorization	**Montana Department of Environmental Quality**	Provides for a temporary narrative water quality standard for turbidity due to construction.	Montana Water Quality Act
Land Use License (DS-432)	**Montana Department of Natural Resources and Conservation**	Licensing structures and improvements on state lands and across navigable water bodies.	Title 77, MCA
Pre-construction Authorization	**Montana Department of Natural Resources and Conservation**	Authorizes construction prior to easement grant by the Board of Land Commissioners	85-2-402 and 85-2-407, MCA
Utility Crossing Permit	**Montana Department of Transportation**	Grants utility crossing permits for transmission line and access roads that may encroach on state-owned roads.	Title 60, Chapter 6, MCA
FEDERAL			
Presidential Permit	**U.S. Department of Energy**	Permit must comply with NEPA and Electric Reliability criteria. DOE must obtain concurrence of Secretary of State and Secretary of Defense before permit can be issued.	Executive Order 12038
Section 404	**U.S. Army Corps of Engineers**	Controls discharge of dredged or fill materials in wetlands and other Waters of the U.S.	Section 404 of the Clean Water Act (33 CFR 323.1, 330)
Notice of Proposed Construction/ Alteration	**Federal Aviation Administration**	Structure location, height, lighting, and documentation relative to air traffic corridors.	49 USC 1501 13 and CFR 77, Objects Affecting Navigable Airspace

TABLE 1.4-1
PERMITS AND OTHER REQUIREMENTS FOR THE PROJECT

Permit[a]	Agency	Description	Authority
FEDERAL (Continued)			
Safety Plan	**Occupational Safety & Health Administration**	Provides guidance to on-site construction worker safety along with emergency contacts, hospital routes, etc.	29 CFR 1910
Tariff Review and Approval	**Federal Energy Regulatory Commission**	Approval of rates for transmission in interstate commerce for jurisdictional utilities, power marketers, power pools, power exchanges and independent system operators.	Title 18 CFR
Review Authority	**U.S. Department of Defense/U.S. Air Force**	Review of construction plans for power pole placement for disturbance of buried cables for Minuteman missile silos.	Consultation and concurrence
Consultation	**U.S. Department of Defense Homeland Security**	Presently required by U.S. security policy.	Consultation and concurrence
Informal Section 7 Consultation	**U.S. Fish and Wildlife Service**	Identifies any species and its habitat listed as endangered or threatened that may be impacted by the project.	Federal Endangered Species Act of 1973
Section 106 Consultation	**Montana State Historic Preservation Office**	Consultation between project applicants and federal agencies regarding impacts on cultural resources that are either listed or eligible for listing on the NRHP.	Section 110 and 106 of the National Historic Preservation Act
Rights of Way on Federal Land	**U.S. Bureau of Land Management**	Easement on federal land crossed by the project.	Federal Land Policy Management Act Subchapter V
LOCAL/COUNTY/OTHER			
Noxious Weed Management Plan	**County Weed Control Districts**	Provides containment, suppression, and eradication of noxious weeds.	Title 7, MCA
Easement Grants and Road Crossing Permits	**Boards of County Commissioners**	Consider issuance of right-of-way easement grants and road-crossing permits for county property and roadways.	County Commissioners
Line Rating	**Western Electricity Coordinating Council**	Three phases of line rating approval.	National Electricity Coordinating Council

Notes:
[a] Refers to permit, notice, review authority, certificate, license, consultation or law.
CFR Code of Federal Regulations
MCA Montana Code Annotated
USC United States Code

Under MFSA, the Montana Department of Transportation (MDT), Natural Resources and Conservation (DNRC), Fish, Wildlife and Parks (FWP), and Revenue, and the Public Service Commission are required to report to DEQ information related to the impact of the proposed site on each agency's area of expertise. The report may include opinions on the advisability of granting, denying, or modifying the certificate (75-20-216[6], MCA).

Presidential Permit

If DOE determines that granting a Presidential permit would be in the public interest, the information contained in this document would provide a basis upon which DOE would decide which alternative(s) should be implemented and which mitigation measures, if any, would be appropriate for inclusion as a condition of the permit. In determining whether issuance of a permit for a proposed action is in the public interest, DOE considers the environmental impacts of the propose dproject pursuant to NEPA, the project's impact on electric reliability, and any other factors that DOE may consider relevant to the public interest.

Electricity Export Authorization

Exports of electricity from the United States to a foreign country are regulated by DOE pursuant to sections 301(b) and 402(f) of the Department of Energy Organization Act (42 U.S.C. 7151(b), 7172(f)) and require authorization under section 202(e) of the Federal Power Act (FPA) (16 U.S.C.824a(e)). However, in its application to DOE for a Presidential permit MATL indicated that it intends to operate the proposed merchant transmission facilities as "open access" transmission facilities, as that term is defined by the U.S. Federal Energy Regulatory Commission, and not export electric energy to Canada on its own account. Therefore, MATL does not intend to seek an electricity export authorization. However, any other entity exporting electricity to Canada using the MATL facilities, if authorized, will require an electricity export authorization issued by DOE.

Eminent Domain

Eminent domain is the process by which the state can acquire private property for public use. The state is limited in that "just compensation to the full extent of the loss" must be paid to the property owner when exercising eminent domain (Montana Legislative Services 2005). Different property types and land uses have been identified by the legislature as appropriate public uses of eminent domain. Among these uses, power lines and their associated rights of way are included with the stipulation that rights of way are designed to be most compatible with the greatest public benefit and the least private harm (Evans 2001). Before acquiring property through the use of eminent domain, the state must prove that public interest requires taking the property

based on several criteria and then proceed through the legal process (Evans 2001). It is through eminent domain that states have the power to provide transportation corridors and other infrastructure needs for their citizens.

1.5 Public Participation and Issues of Concern

The scoping process is used to identify all issues relevant to the Project as proposed by the applicant and to develop alternatives to the proposed Project. Members of the public, agencies, and the interdisciplinary team all helped to define the issues for the scope of analysis. Information related to consultation and coordination among public and government entities can be found in Chapter 5.

1.5.1 Opportunities for Public and Agency Input

DOE issued a "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings and Notice of Floodplain and Wetlands Involvement; Montana Alberta Tie, Ltd." in the *Federal Register* on November 18, 2005 (70 FR 69962). In addition, DOE mailed a copy of the notice, using Montana land ownership records, to each owner of land on the MATL-proposed corridor.

DEQ and DOE hosted four public meetings in December 2005 and June 2006 at which time the public was asked to identify issues and concerns to be addressed during the review. During each meeting, MATL and DEQ representatives presented briefings. Maps and other information were available for review, and representatives from each agency were available to discuss the project, answer questions, and receive public comments.

Meeting dates and locations are listed below:

- Conrad on Monday, December 5, 2005, at Norley Hall,
- Great Falls on Tuesday, December 6, 2005, at the Great Falls Civic Center,
- Cut Bank on Wednesday, December 7, 2005, at the Glacier County Voting Center, and
- Cut Bank on Monday, June 26, 2006, at the Cut Bank Civic Center.

Additionally, throughout the scoping process, stakeholders expressed their concerns via letters, phone calls, and emails.

Other agencies having interest or responsibility in the project approval process include: FWP, Montana State Historic Preservation Office (SHPO), DNRC, U.S. Department of Agriculture (USDA) Farm Services Administration, U.S. Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (FWS).

1.5.2 Issues of Concern

Based on comments received from participating agencies and the public, ten issues and concerns were identified. These issues are briefly described below.

(1) Impacts on farming, ranching, and other land uses:

Concerns were expressed regarding potential difficulties and hindrances of farming around the transmission line structures, potential for noxious weed growth, interference with existing and future pivot or mechanical irrigation systems, and additional fencing needs. One commenter noted that when the original NWE 115-kV Great Falls to Cut Bank line was constructed in the mid-1960s, farmers on the west side of the Golden Triangle expressed concern over the H-frame structures, especially the difficulty of farming around them. With cultivation toolbars and sprayers today ranging up to 120 feet in length, an additional diagonal transmission line presents obstacles to farmers. Requests were made for evaluation of a monopole line that follows (where possible) existing roads, property or section lines, or field boundaries. Re-alignments of the proposed line could be made at turning points located on land historically used for grazing or placed in the conservation reserve program (CRP). Some stakeholders commented that the proposed line should connect to the WAPA 230-kV line at Shelby, negating the need for a new line that would cross diagonally through cropland all the way to Great Falls.

(2) Impacts on protected, threatened, endangered, and sensitive animal and plant species and their critical habitats:

Concerns were expressed about increased perch opportunities for birds of prey and resulting effects on swift fox and sharptailed grouse populations and special status wildlife. There was concern over disturbance of rare plant species that may occur within the project area. Concerns were also expressed regarding interference with migratory and feeding flight paths of waterfowl, bird strike, and potential impacts on critical wildlife habitats.

(3) Impacts on floodplains and wetlands:

Concerns were expressed about the size and degree of impacts on the mapped floodplains, wetlands, waters of the U.S., and other special aquatic sites.

(4) Avian mortality:

Concerns were expressed regarding bird mortality and suggestions were made for the use of bird strike mitigation practices currently implemented at the FWS Benton Lake National Wildlife Refuge and other applicable sites in the northern Great Plains.

(5) Impacts on cultural and historic resources:

Concerns were expressed regarding potential disturbance of Native American settlements and religious sites in the alignments.

(6) Impacts on human health and safety:

Concerns were expressed regarding specific voltage and current specifications, corona effects (including audible noise and radio and television interference), and other electromagnetic field effects from the operation of the 230-kV transmission line on human health and safety.

(7) Impacts on air, soil, and water:

Concerns were expressed regarding highly erodible soils, such as soil erosion and resultant sedimentation to surface water; mass movement and unstable geologic materials and soils; reclamation constraints; and potential increased soil erosion and impacts on existing air quality.

(8) Visual impacts:

Concerns were expressed regarding visual impacts to homes, historic homesteads, and tribal landscapes.

(9) Socioeconomic impacts:

Concerns were expressed regarding potential impacts to taxes and disturbance of residential property in Cascade, Teton, Chouteau, Pondera, Toole, and Glacier counties from the construction and operation of the line.

(10) Impact from development of wind generation projects:

Concerns were expressed regarding the potential wind energy and other electrical generation development, or limitations of that development that may be associated with the new Montana Alberta Tie 230-kV Transmission Line as "reasonable and foreseeable" development.

1.6 Definition of Terms

All technical terms, regulatory language and acronyms used in this document are defined in Chapter 7. Terms that are used to identify an area of study and common electrical power transmission units are defined as follows:

- The **facility location,** also referred to as the **alignment,** is the 500-foot-wide swath encompassing each alternative. It is defined as 250 feet from a reference centerline; however, unless otherwise stated, a pole may be placed anywhere within the alignment. The alignments for the proposed Project and alternatives are shown in maps.
- The **study area** is a 2,260-square-mile area that includes the proposed and alternative alignments and areas where roads may be built or improved. The study area was defined by MATL in its MFSA application to DEQ.
- The **safety zone** is a term limited to discussions of electric and magnetic field and is a 105-foot-wide area somewhere within the alignment for each alternative, depending on where the transmission line is placed.
- The **analysis area** is the area evaluated for each resource. Different resources have different analysis areas. Because impacts from electric and magnetic fields (EMF), for example, are generally limited to a 105-foot zone within an alignment, the analysis area is the alignment for each alternative. On the other hand, because impacts to water resources can be realized downstream from ground disturbance, the analysis area for water resources is the entire study area.
- If an alternative is selected and the line permitted, a 45-foot **right of way** would be negotiated with each land owner. It would fall within one of the alternative alignments evaluated in the environmental analysis.
- **Megawatt** (MW) is a unit used to measure the amount of electrical power transmitted through a high voltage line.
- **Kilovolt** (kV) is a unit used to measure the voltage at which a high capacity line is operated.

2.0 Description of Alternatives

2.1 Development of Alternatives

This environmental analysis evaluates the proposed MATL 230-kV transmission line (the Project) and three alternatives to the Project. MFSA requires DEQ to find that the facility as proposed, or as modified, minimizes adverse environmental impacts, considering the state of available technology and the nature and economics of the alternatives. MEPA requires DEQ to evaluate the proposed Project, reasonable alternatives to the proposed Project that would fulfill its purpose and need, and the No Action alternative. Reasonable alternatives include those that are achievable under current technology and economically feasible when compared with other similar projects. The No Action alternative reflects the status quo and serves as a benchmark against which the Project and other alternative actions can be evaluated. The No Action alternative is Alternative 1. The proposed Project is Alternative 2. Other alternatives to the proposed Project were developed based on comments and issues raised during the scoping process and include Alternatives 3 and 4, described below. Other reasonable alternatives were explored and objectively evaluated. Alternatives that were eliminated from further study are also discussed in Section 2.7.

Development of Alternatives

The development of alternatives was based on scoping comments, baseline information presented in the MATL MFSA application (MATL 2006b), technical analysis of the baseline information and issues, and the mandates of the laws, rules, and regulations administered by the agencies. MATL developed three possible transmission line alignments for the MFSA application. This environmental review analyzes two of those MFSA alignments: MATL A - the proposed Project (Alternative 2), and MATL B - an alignment generally following the NWE 115-kV transmission line from Great Falls to Cut Bank (Alternative 3). The third alignment developed by MATL (MATL C) was not analyzed in detail because it did not address scoping comments as well as other alternatives.

Issue-Driven Modifications to the Proposed Project

Issues raised during scoping are summarized in Chapter 1. DEQ developed eight local realignment segments in response to concerns about specific aspects of the proposed MATL 230-kV transmission line. These concerns focused primarily on diagonal crossings of farmed fields, land use and right-of-way issues, pole construction types and their relationship to land use issues, visual impacts, and wildlife. Local realignments are also considered as mitigating measures to resolve site specific issues.

The eight local realignment segments are described in detail in **Appendix A**. Since some of the local realignment segments overlapped, the EIS interdisciplinary team met to compare potential effects and evaluate the tradeoffs among the local realignments. The team selected five of the eight segments which were then combined with portions of Alternative 2 to make Alternative 4. This collection of segments represents a balance among resource impacts, MFSA criteria for approval listed in 75-20-301(1)(c) and (h), MCA, and the following location criteria for electric transmission lines listed in Circular MFSA-2 (section 3.1.1):

- where there is the greatest potential for general local acceptance,
- where the alignment uses or parallels existing utility and transportation corridors,
- in nonresidential areas,
- on rangeland rather than cropland,
- on non-irrigated or flood irrigated land rather than mechanically irrigated land,
- in geologically stable areas with non-erodible soils in flat or gently rolling terrain,
- in roaded areas where existing roads can be used for access to the facility during construction and maintenance,
- so that structures need not be located on a floodplain,
- where the facility would create the least visual impact,
- at a safe distance from residences and other areas of human concentration, and
- in accordance with applicable local, state, or federal management plans when public lands are crossed.

2.2 Alternative 1 — No Action

Under Alternative 1, the proposed Project would not be approved or implemented. Existing electrical transmission service in southern Alberta and north-central Montana would be maintained and operated at its current level. In addition, development of some potential wind generation resources along the proposed alignment in the Cut Bank area would likely not occur due to limitations of the current transmission system. Selection of Alternative 1 would likely preclude the construction of the proposed facility in Canada as well.

2.3 Alternative 2 — Proposed Project (MATL A)

Alternative 2 is to construct and operate a merchant power line between Great Falls and Lethbridge (the proposed Project). Alternative 2 is further defined by the alignment, right of way, pole design, access roads, construction and operation stages, and environmental protection measures included in MATL's application to DEQ (MATL 2006b) as described below. The study area for which MATL provided baseline information is shown on **Figure 1.1-1**.

Description of Alignment

The Alternative 2 alignment is 129.9 miles long in Montana and is shown on **Figure 2.3-1**. **Figure 2.3-2** shows the southern portion of the alignment in more detail, **Figure 2.3-3** shows the middle part, and **Figure 2.3-4** shows the northern part. The proposed alignment is dominated by agriculture (90.1 percent) interspersed with patches of non-farmland, mostly grasslands. Except for grazing land near the Marias and Teton rivers, and coulees and drainages, the alignment would cross mostly non-irrigated farmland and to a much lesser extent irrigated farmland.

The U.S. portion of the alignment would begin at the 230-kV Great Falls switch yard north of Great Falls. For almost 2 miles the alignment would go directly north following an existing NWE transmission line. The alignment then would turn directly west for 1 mile on FWP land, then north again, passing along the hills on FWP land on the south and west sides of the Great Falls Shooting Sports Complex. The alignment would go northeast along Highway 87, cross the highway at alignment milepost 5, and continue northwest along Black Horse Lake Flat (the south side of Black Horse Lake), then go north over dry cropland interspersed with some pasture through a low point in the bluffs above Black Horse Lake Flat. At milepost 8 the alignment would turn slightly to the west diagonally traversing the dry cropland approximately 1 mile east of Benton Lake National Wildlife Refuge. At milepost 14 the alignment would extend west for approximately 9 miles, turn north for about 5 miles, and then northwest for about 3 miles, crossing farmland and the following coulees (from south to north): headwaters of Huntley, unnamed (2), Timber, unnamed, Kinsey, and Hunt Coulee. In total, about 4 miles of State of Montana land would be crossed. The alignment would pass the west side of Teton Ridge. From the crossing of Hunt Coulee at approximately milepost 36, the alignment would traverse approximately 1 mile of rangeland to the Teton River.

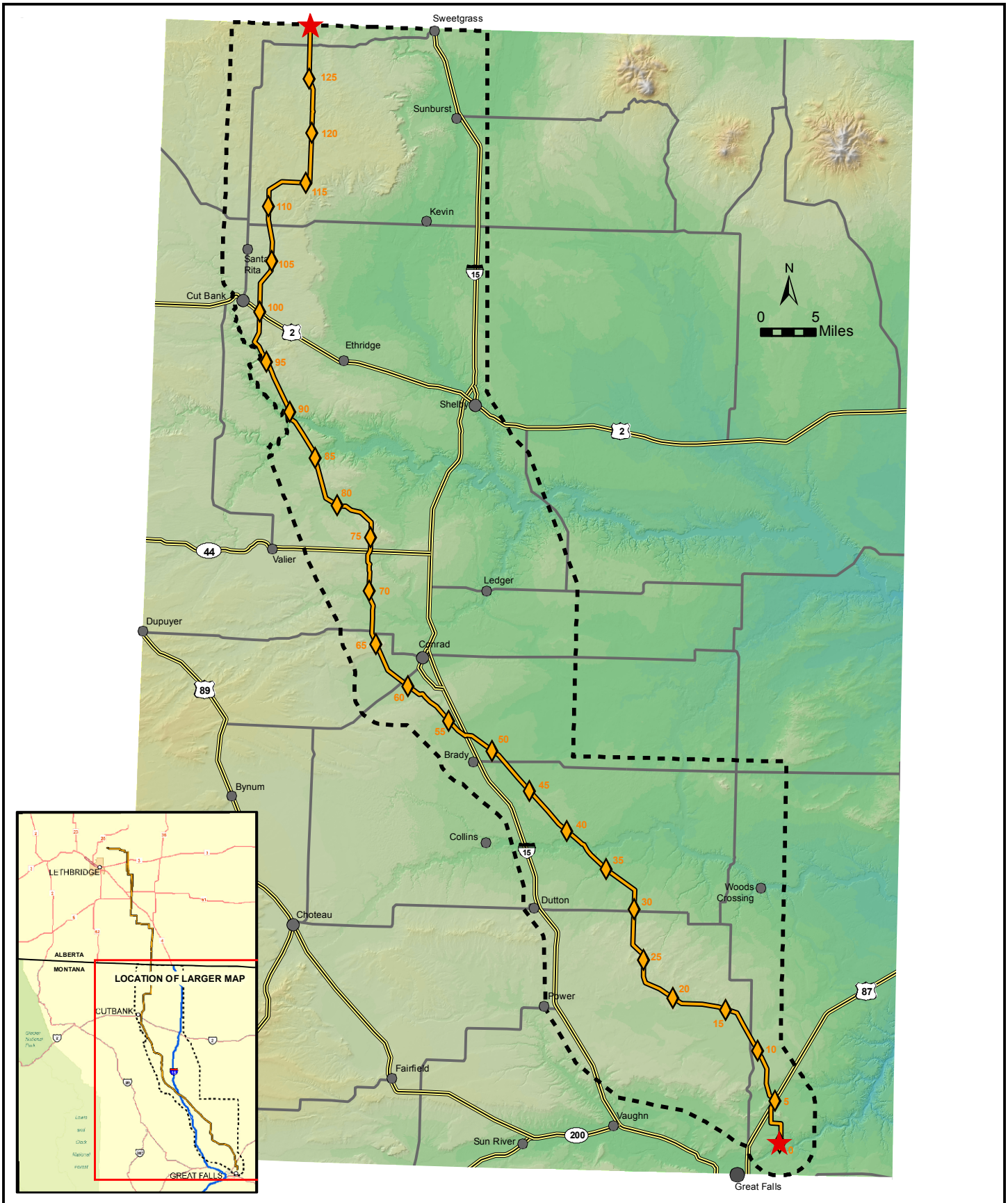


FIGURE 2.3-1
ALTERNATIVE 2 ALIGNMENT

LEGEND

- ALT2 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-1_MATL_ALT2_Alignment_All_020107_JA.mxd

N

0 4 Miles

50

45

40

35

30

25

20

15

10

5

0

15

87

200

Dutton

Power

Vaughn

Woods Crossing

Great Falls

FIGURE 2.3-2
ALTERNATIVE 2 ALIGNMENT SOUTH

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-2_MATL_ALT2_Alignment_South_020107_JA.mxd

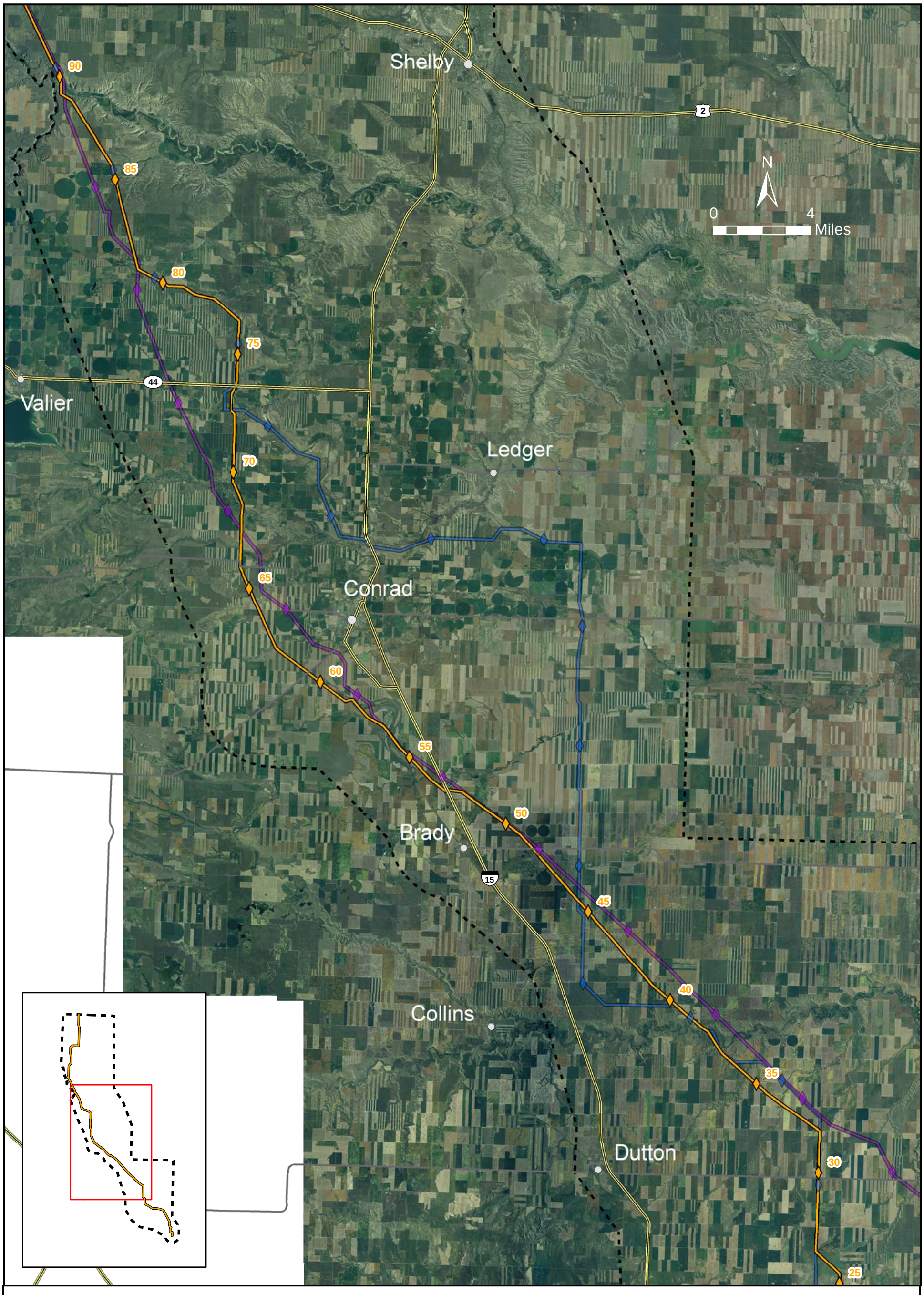


FIGURE 2.3-3
ALTERNATIVE 2 ALIGNMENT
MIDDLE

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-3_MATL_ALT2_Alignment_Middle_020107_JA.mxd

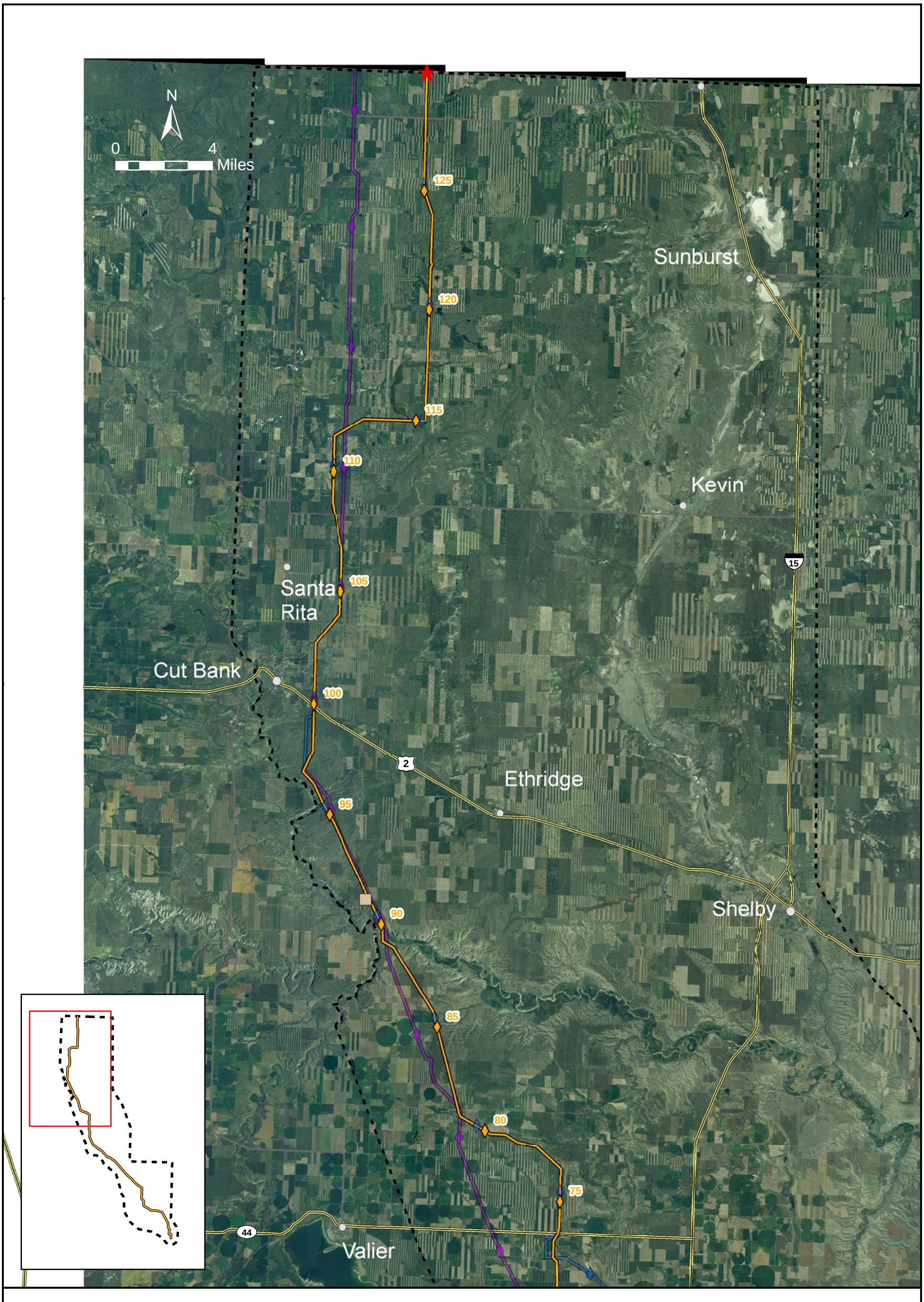


FIGURE 2.3-4
ALTERNATIVE 2 ALIGNMENT
NORTH

LEGEND

- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- MARIAS SUBSTATION

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_3-4_MATL_ALT2_Alignment_North_020107_JA.mxd

The alignment would span the Teton River about ¼ mile east of 17th Lane, on State of Montana land in a ¼-mile-wide gap in a riparian cottonwood stand. From the river the alignment would go northwest and north across cultivated farmland until it intersects and crosses Interstate 15 about 1 ½ miles north of Brady at milepost 53. The alignment would continue northwest, crossing South Pondera Coulee and the Burlington Northern Santa Fe Railroad and Pondera Coulee, and continue northwest south of Conrad, passing approximately 3 miles west of Conrad.

At milepost 64 the alignment would then turn generally north and would cross the eastern end of the Benton Bench. North of the Benton Bench the alignment would cross farmland to the Dry Fork of the Marias River. From milepost 69 north of the river the alignment would continue north about 12 miles over cultivated farmland from Belgian Hill (just north of the Dry Fork of the Marias River) to about the mid point of Trunk Butte. At milepost 77 the alignment would pass through range and pasture land on the north side of Trunk Butte heading west-northwest toward Bullhead Creek. The alignment would follow the south side of Bullhead Creek until crossing Winginaw Coulee. The alignment then would cross Bullhead Creek approximately 3 miles east of Bullhead Lake. The alignment would then traverse farmland and around milepost 81 head northwest to Willow Rounds. The alignment would cross Abbott Coulee to the west of Willow Rounds and head north to the Marias River.

The alignment would cross the Marias River just west of the existing NWE 115-kV transmission line at milepost 90. The crossing would be approximately ½ mile east of the junction of the Two Medicine River and Cut Bank Creek on a mixture of State of Montana and BLM land. North of the Marias River the alignment would extend approximately 8 miles northwest, running roughly parallel to Cut Bank Creek to a new Marias Substation south of Cut Bank. The exact location of this substation has not been determined. The alignment would turn north and cross Highway 2 at milepost 100 approximately 1½ miles east of Cut Bank crossing rangeland in this area. From here north the alignment would cross cultivated farmland to cross Old Maids Coulee. North of Cut Bank, about 10½ miles, the alignment would turn east at milepost 112 for approximately 3 miles turning north near Hay Lake and passing the eastern side of Hay Lake. The alignment would continue north about 14½ miles from Hay Lake over mostly cultivated land to the Montana-Alberta border at a location that coincides with the proposed alignment in Canada. Along this stretch the alignment would pass the eastern edge of Grassy Lake near milepost 121. The border crossing would be at the western edge of the Red Creek Oil Field.

Rights of Way

MATL proposes an operational right-of-way width of 45 feet plus 30 feet on either side to create a 105-foot safety zone for the proposed Project based on structure type, location, proven construction methods, and safety and operations zones. Transmission

line easement requirements would depend on structure widths. The 105-foot-wide zone is based on safety considerations associated with line to ground short-circuiting, and access needs for line repairs and power line maintenance activities. In some situations, the safety zones would be increased to address high wind speeds, which can cause the conductor to swing away from structures.

As discussed below under Transmission Line Structures, the Project would mostly use H-frame structures with three-pole structures used at medium and heavy angles (corners) and dead ends (see Glossary). Where the line would turn a corner, angle-bracing guy wires would be used and additional easement space would be required. Angle structures at corners generally would be subject to guy wire bracing.

MATL would coordinate with the Real Estate Management Bureau of DNRC's Trust Land Management Division for rights of way and easements across school trust lands and navigable waterways administered by the state. MATL would coordinate with the BLM Lands and Realty office to seek approval following a compatibility assessment with the West Hiline Resource Management Plan and completion of the NEPA review process. In addition to fee-owned public lands, areas covered by conservation easements including the FWS wetland easements and the Farm Service Agency's conservation reserve program (CRP) would require that MATL seek compatibility reviews by these agencies on specific parcels to ensure compliance with the terms of the easements.

During the right-of-way acquisition process, MATL would (1) coordinate with each affected landowner in order to develop final alignment and specific tower locations, (2) provide clear information about the right-of-way acquisition process, compensation, construction, and maintenance activities, and (3) understand landowner plans for use of the transmission alignment area in order to address the impact of tower and right-of-way location. MATL could exercise the right of eminent domain to obtain easements. The eminent domain process is discussed in Chapter 1.

Project Design and Implementation

MATL would design, construct, operate, and maintain the proposed transmission system in accordance with the National Electrical Safety Code (NESC), U.S. Department of Labor Occupational Safety and Health Act (OSHA) Standards, and other guidance as appropriate for safety and protection of property. The following sections describe the system components, general construction methods, and operation of the proposed transmission line.

Transmission Line Structures

Laminated wood or wood pole H-frames would be the primary support structures used. Steel structures may be used for special applications such as monopole dead-end structures. **Figure 2.3-5** illustrates the typical H-frame and monopole structures. Design characteristics of the proposed laminated or round wood-pole H-frame support structures are summarized in **Table 2.3-1.** The MFSA application says MATL may use single pole (monopole) structures where necessary to avoid conflict with center pivot irrigation systems. However, MATL has not specified where the monopole structures would be used. Characteristics of monopole support structures are summarized in **Table 2.3-1.**

MATL would use different types of H-Frame structures to address the various angles that would be necessary to accommodate changes in terrain and land use. These structures are shown in **Appendix B**. The proposed laminated or round wood-pole H-frame structures would incorporate 230-kV design standard synthetic insulators, hardware, and ground wires to provide nearly corona-free operation, as well as reduce audible noise and radio and television interference. On the typical suspension structure, three insulator strings would be hung from each structure. Each string would have 12 individual insulators.

One overhead galvanized steel ground wire, about 3/8 inch in diameter, would be installed on one side of the top of the structure for lightning protection. A second ground wire carrying a fiber optic cable for communications would be installed on the other side. At this time the fiber optic capacity of the line would only be used for MATL communications and those of MATL customers. MATL would also use the communication capacity to connect MATL facilities and those of NWE and the Alberta Electric System Operator. No plans have been made to use the excess fiber capacity for commercial purposes.

Holes would be augered into the ground to accommodate new structures. New poles are typically set in the ground 10 percent of the pole's length plus 4 feet (that is, an 80-foot pole would be buried 12 feet). Spacing between two poles of a proposed 230-kV H-frame structure would be about 23 feet. Typical ruling span length would be about 800 feet, but could range from 500 feet to 1,600 feet. Approximately eight structures per mile would be required. Depending on terrain, total disturbance at each structure location during construction would be about 10,000 square feet. Additional design characteristics for the project are summarized in **Table 2.3-2**.

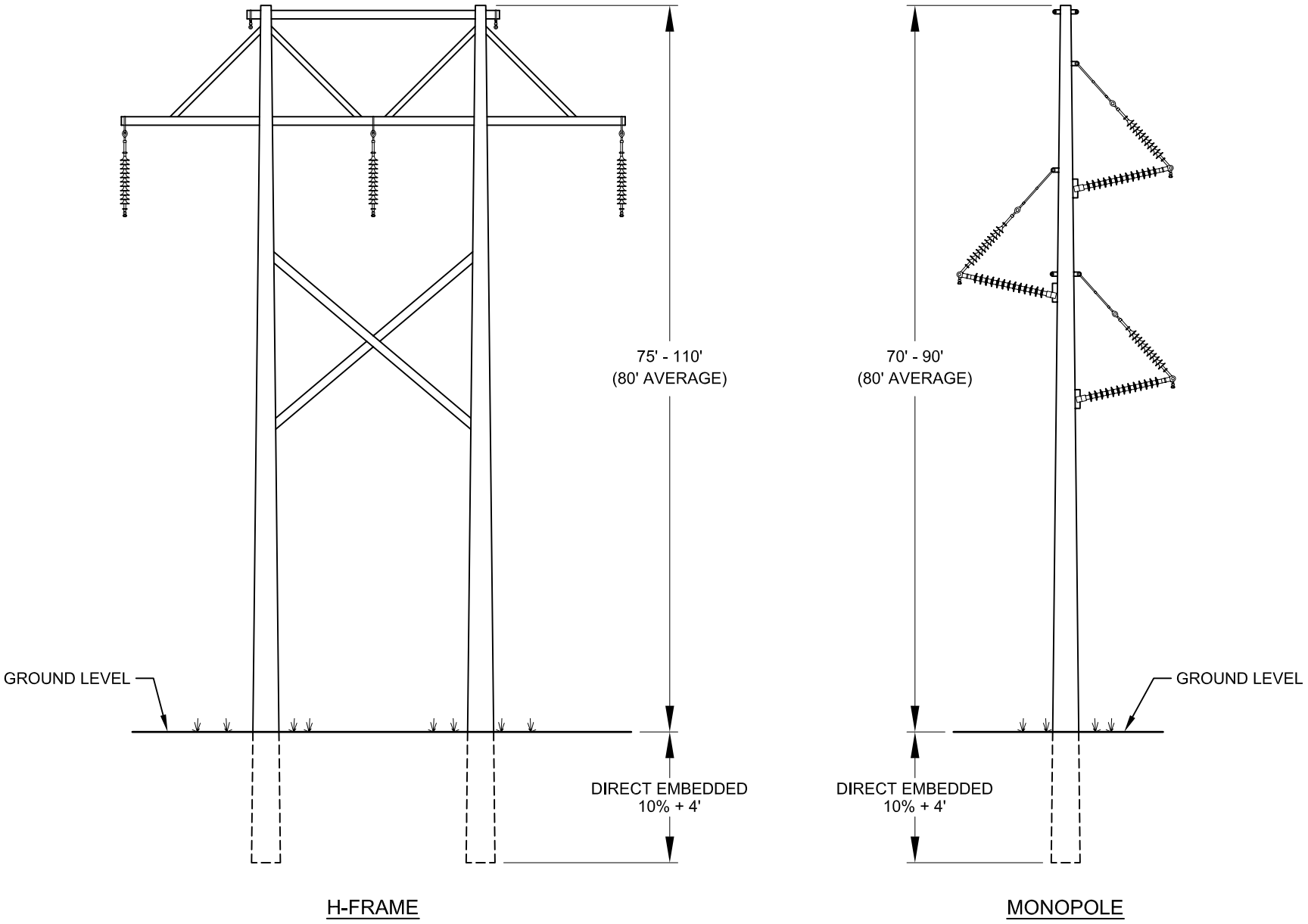


FIGURE 2.3-5
PROPOSED MATL POWERLINE
TYPICAL SUPPORT STRUCTURES

TABLE 2.3-1
TYPICAL DESIGN CHARACTERISTICS

Design Element	H-frame	Monopole [a]
Line Length within Montana	129.9 miles	Same as H-frame
Right-of-Way Width	45 feet	20 feet
Thermal Capacity for 230-kV line	625 MVA @ 212° Fahrenheit	Same as H-frame
Nominal Voltage	230,000 volts (230 kV)	Same as H-frame
Conductor Size	1590 kcmil Falcon	Same as H-frame
Conductor Type	ACSR (aluminum core steel reinforced)	Same as H-frame
Overhead Ground Wire	3/8-inch diameter galvanized	Incorporated into optical ground wire which has a diameter of no more than 0.433 inches
Electric field at edge of right of way	4.78 kV/m	3.78 kV/m
Electric field at edge of safety zone	1.61 kV/m	1.71 kV/m
Magnetic field at edge of right of way	191.46 mG	127.95 mG
Magnetic field at edge of safety zone	62.75 mG	65.62 mG
Electrostatic short-circuit current limit	5 milliampere (mA)	Same as H-frame
Structure Height Above Ground (approximate)	65 feet average	80 feet average
Length of Span (approximate)	790-foot ruling span	490-foot ruling span
Minimum Ground Clearance of Conductor	21 feet at 212°F	Same as H-frame
Typical Structure Base Dimensions	2 poles, 1 foot x 2 foot	1 pole, 1.5 foot x 2 foot
Land temporarily disturbed per site for conductor reel and pole storage yards	3,000 square feet	3,000 square feet
Area required for each structure base during operations	36 square feet	13 square feet

Notes:

ACSR	aluminum core steel reinforced	Kcmil	1,000 circular mils
kV	kilovolts	kV/m	kilovolts per meter
mA	milliampere	mG	milligauss
MVA	megavolt-amperes		

[a] On January 31, 2007, DEQ received notice from MATL indicating that two different types of monopoles could be considered. The long-span monopole design would have spans of approximately 790 feet but would require a poured concrete base and be taller than the H-frame or short-span monopole design. The short-span monopole design would have a span length of about 475 feet. MATL also indicated that to be economically feasible, the total additional costs could not exceed $850,000, or approximately 25 miles of long-span monopoles.

Structure Type	Approximate Cost (U.S. $)/per mile	Percent Increase Over H-frame
H-frame (Proposed)	$293,500	0
Monopole (Long-span)	$326,500	11.3
Monopole (Short-span)	$347,250	18.3

TABLE 2.3-2
ADDITIONAL DESIGN CHARACTERISTICS[a]

Component Description	Alternative 2	Alternative 3	Alternative 4
Line Length in Montana (miles)	129.9	121.6	139.9
H-frame	868	813	346
Monopole	0	0	588
Pulling/tensioning sites (10,000 ft^2)	22	21	24
Staging areas (2.5 acres)	2	2	2
Access road (16.8 feet wide)[a]	3 miles	5 miles	7 miles

Notes:

NA = Not applicable

ft^2 = square feet

[a] Constructed access road estimates are based on minimal need in areas of steep terrain only. Construction disturbance for a road is assumed to be 20 percent greater than the actual roadbed area.

For construction near water bodies, pole structures would not be installed below the normal high-water mark. MATL may use a helicopter for special locations such as major river crossings. If construction occurs during summer/fall months it may be possible to use a boat to string the line across water bodies. If construction occurs during the winter months, clear-span bridges could be used when a stream is dry or frozen (MATL 2006b). Small watercourses could possibly be forded if sufficiently frozen; where fording conditions are not available, other potential options include portable bridge placement or use of existing access roads. Water crossing construction would be postponed if any excessive flows or flood conditions are present or anticipated. The use of a helicopter or boat would be the construction contractor's choice unless dictated to do otherwise.

Transmission Line Conductors

Electrical conductors provide the medium for flow of electrical energy. The proposed circuit configuration and conductor size for H-frame and monopole support structures are shown in **Table 2.3-1**. The conductor consists of strands of reinforced steel cable encased by aluminum strands. The steel cable provides the tensile strength to support the conductor; the aluminum conducts most of the electrical current.

For H-frame structures, the minimum proposed ground clearance of the conductor would be 21 feet, 1.3 feet higher than the 19.72 feet, based on the NESC. MATL predicts that the EMF strengths at the edge of the right of way would be 4.78 kilovolts per meter (kV/m) and 191.46 milligauss (mG), respectively. MATL predicts that the electric and magnetic field strengths at the edge of the safety zone would be 1.61 kV/m and 62.75 mG, respectively.

Markers and Warning Devices

In order to reduce bird collisions with the ground wire, MATL would install bird strike diverters and warning devices in high risk areas such as near Hay Lake, the Marias River, Dry Fork Marias River, and Teton River crossings, east of Benton Lake National Wildlife Refuge (NWR), and high ridge crossings such as the Benton Bench northwest of Conrad. For example, the "firefly" bird flapper/diverter would alert birds to the transmission line through light, motion, and reflectivity (see Section 3.8). For daytime deterrence, this diverter uses highly reflective materials and fluorescent colors designed to be seen and avoided by birds. These markers glow in the dark for about 10 hours for night time deterrence. The "firefly" also rotates in 3- to 5-mile-per-hour wind conditions to increase visibility. MATL would explore other technology and deploy it as needed for site-specific application.

MATL would comply with appropriate regulations of the Federal Aviation Administration (FAA). MATL would install FAA-recommended colored aerial markers for aviation safety, as well as at 12 crossings of the Conoco pipeline, and one crossing of the Cenex pipeline. These ball markers are up to 36 inches in diameter (though 20-inch markers are permitted on approaches to airports below 50 feet) and are available in international orange, white, and yellow (installed with alternating colors). Reflective tape can be installed on the markers to increase their nighttime visibility for aircraft. For transmission lines above 220 kV, a special corona-free inside surface coating is recommended.

New and Upgraded Substations

MATL proposes to construct a new substation (named the Marias Substation), next to the proposed Great Plains Wind Energy McCormick Ranch wind farm. This substation would be located approximately 10 miles south of Cut Bank, but the exact location has not been determined. Alternative 2 does not include an interconnection to Glacier Electric Cooperative at the Cut Bank Substation nor to the substations south of Conrad.

MATL would estimate the EMF strengths at the property boundaries of the proposed Marias Substation to determine if there could be risks to landowners and users of the adjacent properties. The Marias Substation and the expanded 230-kV Great Falls switch yard would be located in farmland or range/pasture land and not be located in a residential or subdivided area.

North of Great Falls, across the river from Giant Springs State Park, MATL is also proposing to interconnect with the NWE 230-kV Great Falls Switch yard, requiring NWE to enlarge the switch yard to accommodate the MATL tie line and other proposed lines. MATL would submit a copy of the interconnect agreement with NWE to DEQ as an addendum to the application, if the agreement becomes valid.

Access Roads

As a result of relatively flat topography and associated agricultural land uses that predominate in the Project study area, MATL anticipates only minimum development of access roads to construct, operate, and maintain the proposed Project. The majority of the Project right of way would be easily accessed from public roads, existing two-track roads, and farm fields allowing truck and equipment travel along the right of way. MATL does not anticipate maintenance of these access points with the exception of gate installations at key locations, if necessary. MATL proposes that disturbances resulting from access requirements would be reclaimed to conditions similar to what existed pre-project or to those conditions specified by landowners during easement-lease negotiations. Obstacles to travel along the right of way would potentially include:

- Slopes greater than 5 percent forcing the contractor to construct temporary access roads,
- Coulees or intermittent stream channels,
- Flowing streams, rivers, or other wetland areas,
- Areas with highly erodible soils,
- Areas providing habitat for sensitive wildlife or plant species,
- Pipelines, railroad tracks, irrigation ditches, or other linear features, and
- Heritage or archaeological sites.

The Marias and Teton river valley crossings may pose difficult access because of rugged topography. Grading and recontouring may be required in these potentially difficult construction sites to gain access to reinforced structures that would support wire spans of these valleys. MATL would reclaim these areas in coordination with landowners and appropriate agencies. MATL expects that other specific sites would be identified and addressed in subsequent reclamation plans as system design and associated access planning proceeds.

Construction

Construction is anticipated to take 4 to 6 months to complete. **Table 2.3-3** provides a summary of construction tasks and required resources and equipment. Transmission line construction tasks would include the following:

- *Pre-Construction*: Environmental permitting, cultural resource clearance, final transmission structure siting, engineering design, land procurement, various utility studies, and major procurement.
- *Surveying:* Initial line survey work, consisting of survey control, alignment centerline location, profile surveys, and access surveys would occur before construction. Light Detection and Ranging (LIDAR) would be used to provide much of this information. LIDAR is an airborne laser mapping technology that directly measures the shape of the earth's surface under the aircraft. LIDAR generates wide-area elevation information that can be used to make models showing details such as buildings, trees, and power lines.
- *Geotechnical Survey:* Investigation at selected key locations (for example, medium and heavy angle deflection points) to establish foundation requirements.
- *Access Planning and Preparation:* Crews would gain access from public roads as well as within the transmission line right of way for constructing, operating, and maintaining the line. When possible, access to the right of way would be by existing trails and roads. Trails are generally two-track routes and are not maintained. Access for line construction would be truck travel within the right of way. Therefore, graded surface access roads are not planned. Trails would be located at right angles to streams and washes. Existing roads and trails would be left in comparable or better condition than before construction. The safety zone is designed to minimize the potential for encroachment and to ensure that if buildings are proposed near the line, the safety zone would be large enough to prevent them from encroaching near the line.

  Gates would be installed where fences cross the right of way. Locks would be installed at landowner's request. Gates not in use would be closed but not locked unless requested by the landowner.
- *Delivery and Assembly:* Framing crews deliver poles, X-braces, cross-arms, insulators, and hardware to structure sites on flatbed trucks, then assemble individual structures. During installation, poles are set directly in holes augered to a depth equal to 10 percent of the pole length, plus 4 feet. Crews would backfill holes, compact fill material to prevent structure movement or settling, and spread excess excavation material evenly over the site or transport it off site for disposal, depending on landowner requests. At heavy angled and dead-end structures, cast-in-place concrete footings would be installed. Crews would assemble structures and place hardware using man-lift trucks. Guy wires would be screwed into the ground using standard construction practices.

TABLE 2.3-3
SUMMARY OF CONSTRUCTION TASKS AND REQUIRED RESOURCES AND EQUIPMENT

Task	Crew Size	Typical Wage Level ($/hour)[a]	Equipment
Access Fencing/Reclamation	2	$15 to $18	¾ –ton post pounder
Framing	6	$17 to $20	Teleking 5-ton crane, Bobcat, 1-ton crewcab pickup
Setting	8	$17 to $20	330 Texoma digger, 35-ton setting crane, gravel truck, air compressor w/ tamper, Bobcat, (2) 1-ton crewcab pickups
Anchoring	3	$20 to $22	radial arm digger or retrofitted trench hoe
Material Handling	2	$17 to $20	(2) trucks
Pole Hauling	3	$20 to $22	pole truck, pickup
Stringing	31	$20 to $26	Tensioner, puller, 30-ton crane and pickup, soft line winder and pickup, cat pulling sock line and pickup, crane and pickup, flat deck and small crane, rider pole crew digger, pole truck

Notes:
[a]Wage levels extrapolated from "Montana Prevailing Wage Rates – Heavy Construction" Rates Effective March 10, 2006

- *Conductor Installation:* After erecting all structures, conductor and ground wires would be installed. Large reels of conductor and overhead ground wire would be delivered to pre-selected pulling and tensioning sites (about every 2 miles) along the transmission line alignment. About 10,000 to 16,000 feet of conductor and overhead ground wire would be installed for each pull. Methods used to install conductor and overhead ground wire include using a small line (p-line) attached to the conductor or ground wire to pull the cable through pulleys attached to the insulator strings. Once the conductor/ground wire is pulled the necessary length, it is tightened. Adjustments made during tensioning would prevent the cable from sagging too much (due to ambient temperature and heating caused by flow of electricity) and would comply with the NESC.
- *Restoration*: All disturbed areas associated with transmission line construction would be restored to pre-construction condition. These efforts typically include gate repair as necessary, revegetation, and waste material removal.

MATL proposes construction to commence as soon as all permits and a certificate of compliance are issued by DEQ. MATL may be completing construction activities during the late spring and summer seasons, which may coincide with agricultural activities. MATL would try to minimize and avoid impacts to planted and growing agricultural crops or compensate the landowner if impacts cannot be avoided.

Construction Staging Areas

Construction staging areas (sometimes referred to as "lay-down areas") would be located in previously disturbed areas, such as rail yards, siding areas, construction yards, and fallow lots, whenever possible. Some construction staging areas may be located on undisturbed land when disturbed sites are not available. In general, construction staging areas would be located in communities near the right of way where rail and truck service are available, or in rural areas where equipment could be unloaded from tractor-trailers. In all cases, construction staging areas would be located on private land and would be subject to landowner negotiations and agreements. Construction staging areas would likely be located near Cut Bank, Valier, Conrad, Brady, Dutton, and Great Falls. Each site would likely be between 2 and 3 acres. The combined total disturbed area associated with these sites would be approximately 15 acres.

Operations

NWE and Alberta Electric System Operator system dispatchers at power control centers would direct normal line operations, using MATL's facilities to operate circuit breakers, determine the amount of power required to serve the loads and configure the power system accordingly. Dispatchers also would schedule the proper generation amount, and monitor the power system to ensure reliable service. Circuit breakers would operate automatically to ensure safe transmission line operation. Normal farming and other activities would be permitted on transmission line rights of way, if these activities do not interfere with line operation and maintenance or create safety problems. Grid reliability is discussed in Chapter 1.

Maintenance

Maintenance programs would include routine aerial and ground patrols. Aerial patrols would be conducted annually and as needed after severe wind, ice, wild fires, or lightning storms to check for damage to conductors, insulators, or structures. Ground patrols generally would occur every 5 years to detect equipment in need of repair or replacement. When possible, ground patrols and subsequent repair activities would be scheduled to minimize crop and property damage. Noxious weed control plans (see **Appendix C MATL Noxious Weed Control Plan**) would help guide herbicide treatments. Vegetation clearing may also be required in certain areas to minimize fire hazards.

For emergencies, crews would respond promptly to repair or replace damaged equipment. MATL would meet with respective landowners to arrange compensation for any damages incurred during emergency repair operations.

Environmental Protection Measures

MATL proposes project-specific environmental protection measures, shown in **Table 2.3-4,** that may be used to avoid or reduce the intensity and/or duration of the impacts to resources. MATL proposes to implement a worker education program and on-site monitors to ensure that the mitigations are strictly followed. Other guidance MATL proposes to use includes WAPA's Construction Standard 13 (WAPA 2001) and Raptor-Safe Power Line Construction Practices (Edison Electric Institute [EEI] and Avian Power Line Interaction Committee [APLIC] 1996). Applicable standards from Standard 13 that MATL would adopt include:

- *Landscape Preservation (Section 13.3):* Includes guidance to preserving landscape features, constructing and restoring construction roads, and constructing and restoring construction facilities, such as offices and storage yards.

- *Preservation of Cultural Resources (Section 13.4):* Provides requirements for treatment and notification of known or discovered cultural sites or artifacts.

- *Noxious Weed Control (Section 13.5):* Requires a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed.

- *Disposal of Waste Material (Section 13.8):* Requires removing and disposing of all waste material generated during construction.

- *Pollutant Spill Prevention, Notification, and Cleanup (Section 13.10):* Requires measures to prevent spills of pollutants and appropriate response if a spill occurs. Includes any solvent, fuel, oil, paint, pesticide, engine coolant, or similar substances.

- *Prevention of Air Pollution (Section 13.13):* Ensures that construction activities and equipment operation reduce air pollutant emissions, and that nuisance dust is controlled.

TABLE 2.3-4
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
General			
Construction personnel would be instructed on the location and identification of sensitive resources within or adjacent to the project right of way, as well as regulations pertaining to the protection of cultural and ecological resources.	Would help prevent damage to sensitive and/or protected resources.	Throughout Project area. Sensitive areas would be identified further during design phase.	Prior to construction
Erosion Control			
Erosion Control Plan identifying locations and specifications of measures to minimize erosion and sedimentation.	Re-establish vegetation and implement physical barriers to minimize soil movement on exposed slopes.	See MATL's draft Reclamation & Revegetation Plan in **Appendix D**. As the design phase continues, a SWPPP would be prepared as part of the MPDES permit.	Pre-construction
Construction contractor would implement erosion control measures (for example, water bars, drainage contours, straw bales, filter cloth, or similar). All off-site vegetative materials would be certified "weed free."	Implemented in areas with steep slopes to minimize soil movement.	See **Appendix D**. As the design phase continues, a SWPPP would be prepared as part of the MPDES permit.	During construction
Access			
Access would be limited to existing roads or two-track utility corridor, unless not feasible for transport of equipment/material.	Avoidance of new permanent vehicular access and long-term ground disturbance.	Potentially the Marias River and Teton River crossings may require some new access. This would be finalized and identified by milepost during design phase.	During construction
General engineering design plans would be developed for unforeseen temporary use areas.	Disturbance minimization and/or protection of natural resources.	Throughout Project area – This would be finalized and identified by milepost during design phase.	Pre- and during construction
All construction vehicle movement or temporary use areas outside the right of way would be coordinated with the authorizing agency and restricted to pre-designated access, contractor acquired access, or existing roads.	By limiting access to the project area, unnecessary impacts to soils and vegetation would be avoided or minimized.	Throughout Project area – This would be finalized and identified by milepost during design phase.	During construction

TABLE 2.3-4 (Continued)
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
At sites with soils that are sensitive to compaction, construction would be done with low bearing-pressure vehicles or compacted soil would be rehabilitated after construction by discing, plowing, or other means.	Weight limiting/distributing to reduce soil compaction and ground cover damage.	Croplands throughout Project area	During/post construction
Access road widening would be restricted unless essential for project implementation.	Minimizes damage to soils and vegetation.	Throughout Project area	During construction
Construction would be planned to avoid periods of intense farming (for example, grain harvest), as applicable.	Avoid impacting farming practices as well as crop damage compensation.	Croplands throughout Project area.	During construction
Fences, gates, and cattle guards would be repaired or replaced to their original condition if damaged during construction.	Replacement or repair as an effective resolution to property damage.	Cropland and range land as required throughout Project area.	Post-construction
MATL would work with the MDT in the design and construction of structures along or crossing any highway right of way.	Minimizes traffic disruption.	MDT maintained roads	Pre-construction
Existing roads would be properly maintained, and grading may be necessary.	Maintenance of proper drainage.	Throughout Project area	During and post construction
Access not required for operation/maintenance would be closed using the most effective method with landowner concurrence.	Prevention of permanent motorized vehicle use and resulting disturbance to soil/vegetation.	Throughout Project area	Post-construction
During project final design, structures and associated disturbances would be located to avoid or minimize impacts to known sensitive features such as water courses, residences, or cultural resource sites.	Avoid/minimize impact to sensitive features.	To be identified by milepost during final project design	Pre-construction
All construction vehicles would be restricted to the certificated construction right of way, associated facilities, and permitted access roads.	Avoid/minimize environmental impact	Throughout Project area	During construction

TABLE 2.3-4 (Continued)
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
Surface Water and Wetlands			
Locations for new structures would be selected to avoid 100-year floodplain encroachment where practicable.	Avoidance would prevent potential disturbance within 100-year floodplains.	Marias River, Teton River, and Old Maids Coulee crossings	Pre-/during construction
MATL would prepare an erosion control plan, whereby measures, locations of measures, and specification for measures would be used to minimize erosion and sedimentation. As a part of this a SWPPP would be submitted to DEQ.	Effective erosion control planning to reduce erosion.	See **Appendix D**. As the design phase continues, a SWPPP would be prepared as part of the MPDES permit.	Pre-construction
Unavoidable wetland impacts would require permits from U.S. Army Corps of Engineers to comply with Section 404 of the Clean Water Act.	Mitigate unavoidable impacts to wetlands and other waters of the U.S.	See **Appendix E** for a description of drainages and wetland areas that would be avoided, if possible. Any unavoidable areas would be identified by milepost during the final design phase.	During design and construction
If work in a 100-year floodplain is unavoidable, DNRC and county floodplain administrators would be consulted during the design phase and, if required, appropriate permit(s) would be obtained and implemented.	Permit stipulations would avoid or mitigate potential disturbance within floodplains.	Marias River, Old Maids Coulee, and Teton River crossings	Pre-/during construction
Wherever possible, placement of new structures and associated construction activities would occur out of wetland boundaries.	Avoidance of impacts to wetlands and other waters of the U.S.	See **Appendix E** for a description of wetland areas that would be avoided if possible. Any unavoidable areas would be identified by milepost during the final design phase.	Pre-/during construction
Reclamation & Revegetation			
Disturbed areas would be reclaimed by appropriate contouring and replanting with an approved seed mix. All seed mixtures would be certified "weed free."	Re-establishing desirable vegetation cover on disturbed sites to prevent soil loss and weed infestation.	Throughout Project area. Also see MATL's draft Noxious and Invasive Weed Plan and draft Reclamation and Revegetation Plan (**Appendices C** and **D**).	Post-construction

TABLE 2.3-4 (Continued)
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
Tree removal would be kept to a minimum. If feasible, equipment should go around wooded areas.	Avoiding or selectively cutting trees would protect limited forested habitats. Avoidance is preferred.	No forested areas have specifically been identified to date. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**)	During construction
Noxious weeds would be controlled through implementation of noxious weed control plans approved by appropriate county agencies.	These efforts would reduce or eliminate introduction and spread of invasive, noxious plants.	Throughout Project area. Also see MATL's draft Noxious and Invasive Weed Plan and draft Reclamation and Revegetation Plan (**Appendices C** and **D**).	Pre-/during construction
Disturbed areas would be reclaimed to pre-construction condition or landowner requests as site work is completed.	Reduce or eliminate erosion, and weed invasion.	Throughout Project area. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**).	During/post construction
Any reseeding would be done with an approved seed mixture.	Reduce or eliminate spread or invasion of noxious weeds.	Throughout project area. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**).	Post construction
If necessary, vehicle wash stations would be located at appropriate locations and would be used to minimize the spread of noxious weeds along the right of way. All construction equipment would be thoroughly washed prior to first use on the Project.	Cleaning would remove mud, dirt, and plant parts from undercarriages, tires, grills, radiators etc. This would reduce potential of spreading noxious weeds.	Need and location of vehicle wash stations would be determined during final design stage.	During construction
All fill mixture brought into construction areas would be free of noxious weeds.	Borrow site should be inspected to minimize movement of noxious weeds.	Throughout Project area. Also see MATL's draft Reclamation and Revegetation Plan (**Appendix D**).	During construction
Health & Safety			
All on-site servicing or refueling of construction equipment would be performed using protective spill containment or absorption mats.	To prevent spills of pollutants, such as fuels and lubricants.	Throughout Project area	During construction
Storage of oil fluids or petroleum products on site would be prohibited. All petroleum products would be removed to a disposal facility authorized for disposal.	Reduces chances of spills and ensures proper storage and disposal of fuels and lubricants.	Throughout Project area	During construction

TABLE 2.3-4 (Continued)
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
All construction debris and trash would be contained and removed on a daily basis.	Daily containment and removal would prevent accumulation and windblown trash.	Throughout Project area	During construction
Traffic management and control of local roadways would be considered during construction.	Avoid unnecessary impacts to local traffic patterns.	State highway crossings and all county highway crossings. County crossings would be identified by milepost during final design and encroachment permits would be obtained, as required, from local county offices.	During construction
Human Health & Environment			
MATL would address individual complaints concerning radio and television interference as needed.	Alleviate individual impacts to radio and television users in vicinity of line.	As required, throughout Project area.	Pre/post-construction
Design would incorporate reduction or elimination of induced current and voltages.	Eliminate impacts associated with proximity and electric shock.	Throughout Project area	Pre-construction
Design and construction would be such to reduce electromagnetic field to the extent feasible.	Reduce potential for EMF effects.	Throughout Project area	Pre-construction
Land Use			
Construction would be planned to avoid periods of intense farming (for example, grain harvest) as applicable.	Avoid crop damage or compensate for damage.	Croplands throughout Project area.	Pre-/during construction
Fences, gates, and cattle guards would be repaired or replaced to their original condition if damaged during construction.	Resolution of potential property damage through replacement or repair.	Throughout Project area	Post-construction
MATL would secure encroachment permits from the MDT and counties for the design and construction of structures along or crossing any highway right of way.	Minimize impacts and safety concerns in the vicinity of roads and highways.	Final location of crossings would be determined during final design stage.	Pre-construction

TABLE 2.3-4 (Continued)
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
Cultural			
A project map would be provided to the contractor identifying all sensitive areas relative to the selected alternative. Prepare unanticipated discoveries plan.	Contractor awareness and mitigation implementation (notification and/or avoidance).	To be identified once cultural resources inventory and study are completed.	Pre-construction
Archeological monitors (including tribal) would be used when working in the vicinity of archeological sites.	Would monitor and work closely with MATL and contractor to ensure application of mitigation/avoidance measures.	The need for this would be assessed once the cultural resources inventory and study are completed.	During construction
Selective pole placement would be used to avoid impacts to cultural resource sites.	Cultural resource site protection.	To be identified once cultural resources inventory and study are completed.	Pre-construction
Access roads through cultural resource sites would be prohibited.	Cultural resource site protection.	To be identified once cultural resources inventory and study are completed.	Pre-construction
If any buried antiquities or remains are discovered, the contractor would notify DEQ and SHPO prior to continuing work.	Would allow for proper treatment of any undiscovered sites.	Unknown	During construction
Visual			
Structures would be placed to avoid or span visually sensitive features whenever possible.	Reduce potential visual quality impacts.	To be identified once visual resources analysis is completed during the EIS.	Pre-/during construction
No paint or permanent discoloring agents would be applied to rocks or vegetation. All flagging would be removed upon completion of the project.	Reduce potential visual quality impacts.	Throughout Project area.	Pre-/during construction
Wildlife			
Raptor safe power line construction practices (Edison Electric Institute, Avian Power Line Interaction Committee) would be employed during transmission line construction.	To reduce risk of electrocution to perching raptors.	Throughout Project area, as needed (Benton Lake NWR, and others).	Pre-/during construction
Approved line marking devices would be installed at appropriate intervals and appropriately staggered on each overhead ground wire across stream crossing and migratory bird flyways (for example, wetland crossings) within the right of way.	Minimization of potential bird strikes at stream crossings and other high use areas.	Installed at water body and drainage crossings and at wetland areas identified in **Appendix E**. This would be finalized during final design.	Pre-/during construction

TABLE 2.3-4 (Continued)
MATL PROPOSED
ENVIRONMENTAL PROTECTION MEASURES

Environmental Protection Measures and Monitoring	Intended Effectiveness	Locations (if known)	Timing
MATL would consult with FWP concerning construction activities (for example, timing) near sharp-tailed grouse leks.	Timing restrictions on construction near sharp-tailed grouse leks would reduce potential disturbance to grouse.	Leks were identified within 1 mile of the Marias River crossing and would be addressed.	Pre-/during construction
Air Quality			
Water would be sprayed on areas that are producing excessive airborne dust in proximity of residences and communities and as needed to ensure safety during construction.	Dust suppression during dry periods or near populated areas.	Throughout Project area, as required to address dry conditions during construction.	During construction

Notes:

DNRC	Department of Natural Resources and Conservation
EMF	Electric and magnetic field
EIS	Environmental Impact Statement
FWP	Montana Fish, Wildlife, and Parks
MATL	Montana Alberta Tie Line
MDT	Montana Department of Transportation
MPDES	Montana Pollutant Discharge Elimination System
NWR	National Wildlife Refuge
SHPO	State Historic Preservation Office
SWPPP	Storm Water Pollution Prevention Plan

Site-specific locations where these measures would be used would be finalized during the final design phase and would be identified by project milepost location when that information becomes available. Final mitigation measures required to address those site-specific measures (and all other finalized plans) would be submitted to DEQ before construction begins. In addition, MATL would work with DEQ to identify the extent of environmental monitoring that would be needed during and after construction.

DEQ would apply environmental specifications to the proposed Project (**Appendix F**). DEQ's draft Environmental Specifications identify general environmental protection measures and sensitive areas for site-specific specifications.

2.4 Alternative 3 — MATL B

Alternative 3 would generally parallel the NWE southeast to northwest trending 115-kV line along its entire distance from the line's tie-in to NWE's 230-kV switch yard north of Great Falls to a substation by Cut Bank.

This alternative is described in the MATL MFSA application as Alternative MATL B (MATL 2006b). Alternative 3 was designed based on a single criterion listed in 75-20-301(1) MCA, with specific intent to utilize or parallel the existing NWE 115-kV transmission line corridor. This alternative alignment was initially considered by MATL as its preferred option, but it was later modified. This alternative is not intended to address potential land use issues or maintenance issues but is the shortest and potentially the least costly alternative under consideration.

Description of Alignment

The alignment for Alternative 3 would be 121.6 miles long (**Figure 2.4-1**). The south part of the alignment is shown in detail on **Figure 2.4-2**. The middle part is shown on **Figure 2.4-3**, and the north part is shown on **Figure 2.4-4**. The alignment would follow Alternative 2 heading north from Great Falls. Alternative 3 would diverge from Alternative 2 near the Great Falls Shooting Sports Complex (at about milepost 1), continuing north along the eastern side of the complex where Alternative 2 would change direction to the west, then north. Alternative 3 would rejoin the Alternative 2 alignment north of the complex at approximately milepost 2, generally following the NWE 115-kV power line. Alternative 3 would diverge from Alternative 2 again around milepost 13 where Alternative 2 crosses 8th Road, at approximately milepost 14. Alternative 3 would continue in a northwesterly direction, following the 115-kV power line, on the east side of Teton Ridge, while Alternative 2 would turn west then north. Alternative 3 and Alternative 2 would come close to each other and parallel each other (but not join) at approximately milepost 32 of Alternative 2 in the headwaters of Kinnerly Coulee. Alternative 3 generally would parallel Alternative 2, mostly to the east of Alternative 2, from milepost 32 to approximately milepost 70 north of Conrad. The alignment would cross Sheep, Rye, Timber, unnamed, Kinley, and Hunt coulees.

The Teton River crossing would be approximately 1 mile west of Kerr Bridge (20th lane) in an area approximately 100 yards east of a mature riparian cottonwood stand. Alternative 3 would cross Pondera Coulee east of Alternative 2 then generally continue northwest across the tip of the Teton bench while Alternative 2 would head north to its crossing of the Dry Fork of the Marias River. Alternative 3 would cross the Dry Fork of the Marias River about 1½ miles northwest of the Alternative 2 crossing to rejoin Alternative 2 at approximately mile 83 by Bullhead Creek. Alternative 3 diverges from the NWE 115-kV line about 1½ miles south of Bullhead Creek, going north to cross Bullhead Creek at the same location as Alternative 2. Alternative 3 then rejoins the NWE 115-kV line to continue northwest with some minor differences.

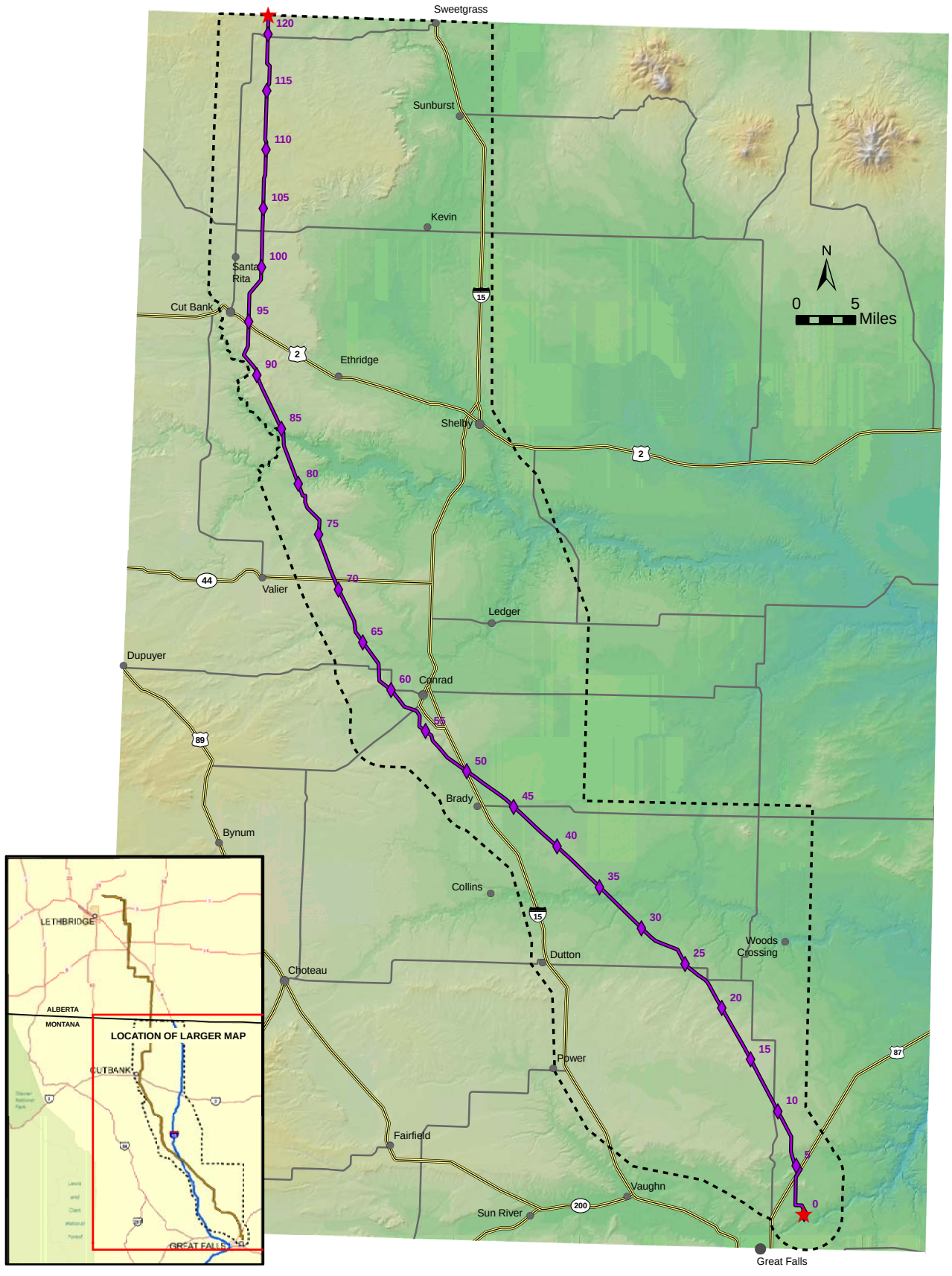


FIGURE 2.4-1
ALTERNATIVE 3 ALIGNMENT
(MATL B)

LEGEND

- ALT3 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-1_MATL_ALT3_Alignment All_020107_JA.mxd

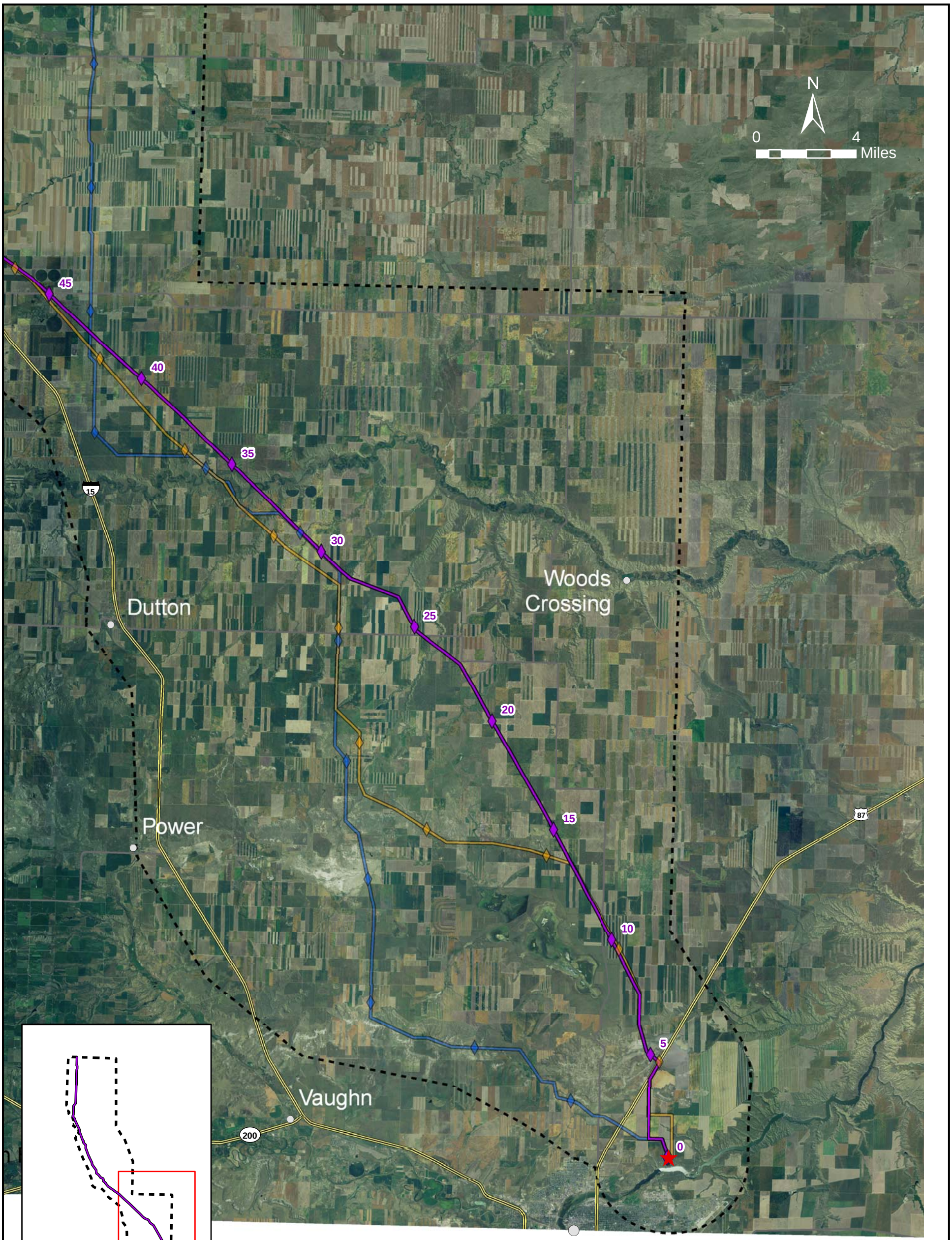


FIGURE 2.4-2
ALTERNATIVE 3 ALIGNMENT
SOUTH

LEGEND

- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-2_MATL_ALT3_Alignment_South_020107_JA.mxd

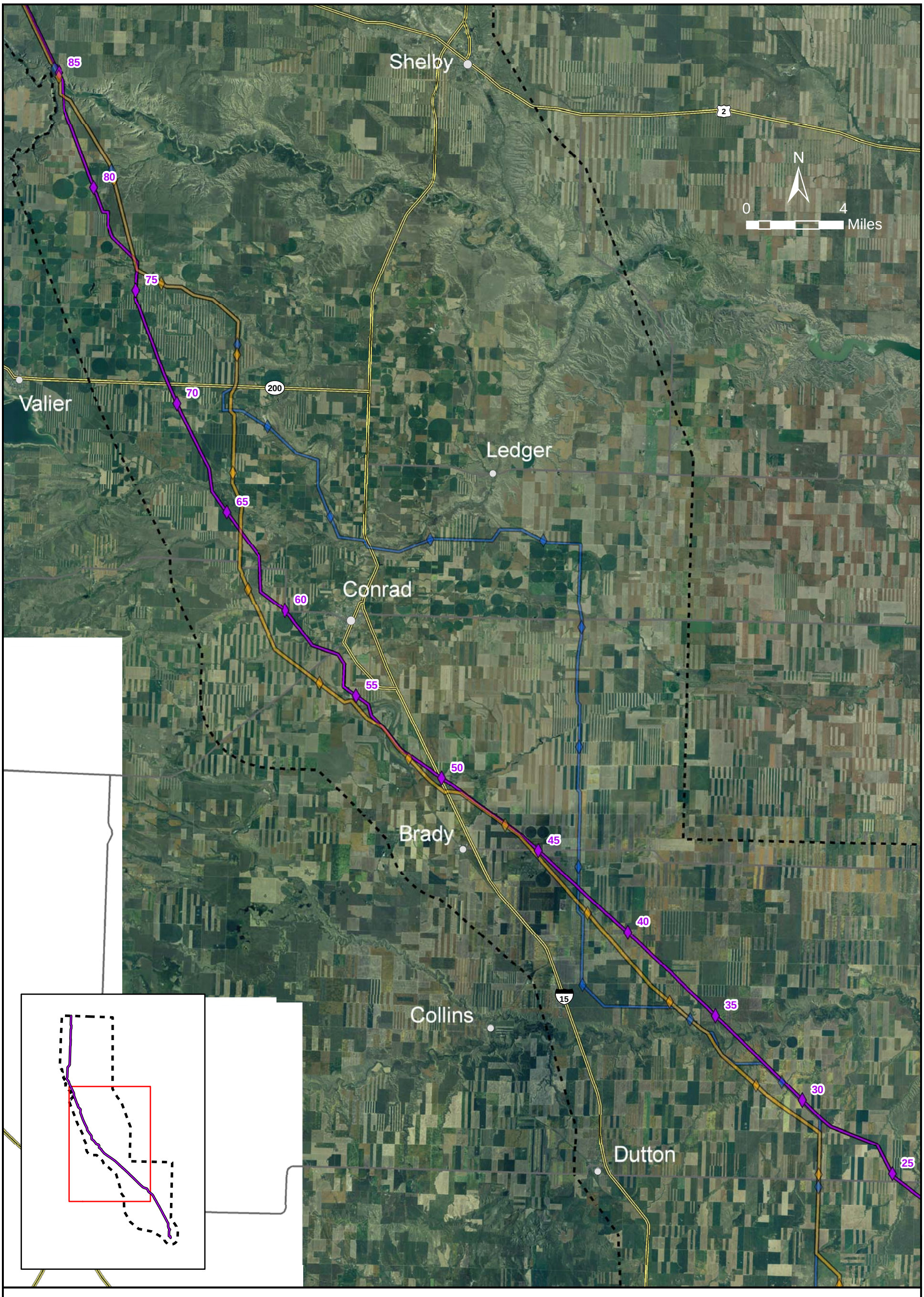


FIGURE 2.4-3
ALTERNATIVE 3 ALIGNMENT
MIDDLE

LEGEND

- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-3_MATL_ALT3_Alignment_Middle_020107_JA.mxd

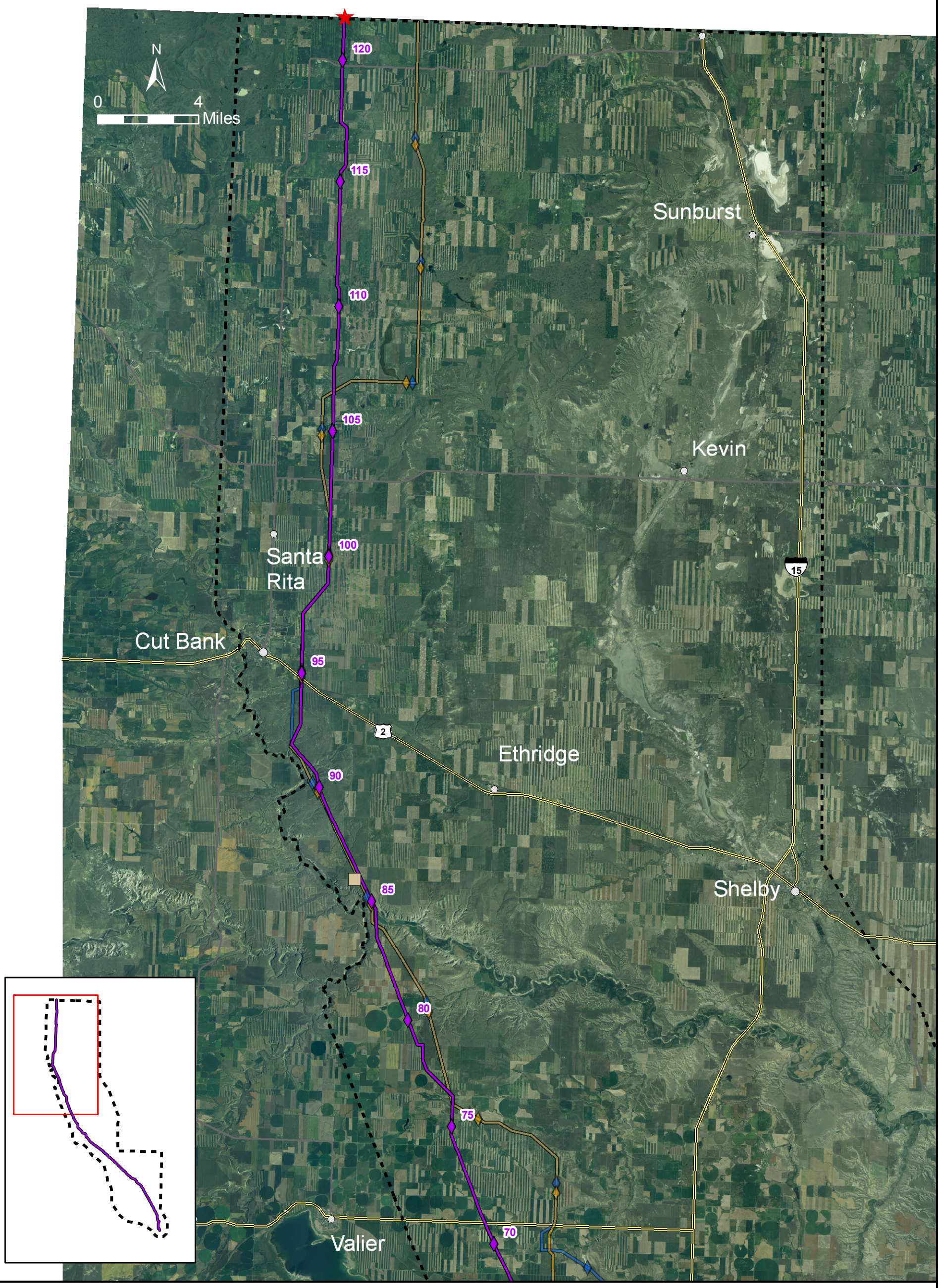


FIGURE 2.4-4
ALTERNATIVE 3 ALIGNMENT
NORTH

LEGEND

- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- MARIAS SUBSTATION

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_4-4_MATL_ALT3_Alignment_North_020107_JA.mxd

Under Alternative 3, the crossing of the Marias River would be just to the east of the Alternative 2 crossing. From here to Cut Bank, the alignment for Alternative 3 would parallel and overlie Alternative 2. Alternative 3 would diverge notably from Alternative 2 north of Santa Rita, at approximately milepost 115. From this location, Alternative 3 would continue in a northerly direction, while Alternative 2 would turn east before heading north. The border crossing for Alternative 3 would be approximately 4 miles west of the border crossing for Alternative 2. **Table 2.3-2** describes additional design characteristics for Alternative 3.

Except as specified in this section, the following aspects of Alternative 3 would be the same as described under Alternative 2: alignment, rights of way, design, implementation, structures, conductors, markers, substations, access roads, construction, operations, maintenance, and potential environmental protection measures listed in **Table 2.3-4**.

DEQ would apply environmental specifications to the proposed Project (**Appendix F**). DEQ's draft Environmental Specifications identify general environmental protection measures and sensitive areas for site-specific specifications.

2.5 Alternative 4 – Agency Alternative

Alternative 4 was developed by DEQ to address public concerns over the proposed line regarding interference with farming activities and close proximity to residences. It would use portions of Alternative 2 from north of Conrad to the Montana-Alberta border. When developing Alternative 4, DEQ located the alignment to maximize the use of range and pasture land, where it was available. Where cultivated land would be crossed, the alternative was generally located along north-south and east-west field or strip boundaries, as suggested by public comment. Where the alternative does not run north-south or east-west, it would be mostly located on range and pasture land, where interference with farming would be reduced. Public land would be used when it would be reasonably available, but most land in the study area is privately owned.

DEQ also attempted to maintain a buffer around residences to reduce visual impacts and help alleviate concerns about potential health effects. However, in order to maximize the use of field and strip boundaries, the alternative would be located within ¼ mile of several residences.

Specific line location suggestions by individual landowners were incorporated into Alternative 4 south of Highway 2, south of Highway 44, south of the Teton River in the Diamond Valley area, and north of the Great Falls 230-kV switch yard. Alternative 4 would parallel WAPA's 230-kV single pole Great Falls to Conrad line where that line is located mostly on range and pasture land. In response to extensive public comment,

this alternative incorporates a single pole design where cropland and land enrolled in CRP would be crossed.

DEQ identified other possible local realignments to address the specific issues raised during the scoping meetings. After initial analysis, only 5 of the local realignments were assembled into this Alternative 4. All of the local realignments, including those retained in Alternative 4, are outlined in detail in Section 2.7, alternatives considered but dismissed. DEQ's initial analysis of the local realignments is presented in **Appendix A**. Although Alternative 4 is analyzed as a whole, the DEQ director may select only some of the local realignments or other realignments that have been reviewed but not included in this alternative.

Except as specified in this section, the following aspects of Alternative 4 would be the same as described under Alternative 2: rights of way, design, implementation, structures, conductors, markers, substations, access roads, construction, operations, maintenance, and environmental protection measures listed in **Table 2.3-4**. Alternative 4 would require the use of monopole structures on cropland and CRP land.

Alternative 4 would be 139.6 miles long in Montana and is shown on **Figure 2.5-1**. **Figures 2.5-2, 2.5-3,** and **2.5-4** show the alignment in more detail. MATL has indicated that because Alternative 4 is longer than the other alternatives, and because the use of monopoles may require more poles per mile, this alternative would be more expensive than alternatives 2 and 3. MATL estimates that the direct effect of Alternative 4 would be to result in a 12 month delay and a $7 million increase in direct costs (Tonbridge Power, Inc. 2007). MATL has stated that if DEQ selects this alternative, the project would be unlikely to be built.

The alignment would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of farm land, where possible (**Figure 2.5-2**). Where Alternative 2 would go directly north out of the Great Falls switch yard, Alternative 4 would take a west-northwesterly path out of Great Falls paralleling the railroad and the WAPA 230-kV Great Falls to Conrad transmission line, making use of an existing transportation corridor. The alignment would head west and then north along the railroad and rejoin the Alternative 2 alignment where it leaves 8th Road around milepost 27. This alignment would run south and west of Benton Lake National Wildlife Refuge. In the headwaters of Kinnerly Coulee, just south of the Teton River, the alignment would run directly north at milepost 32 where Alternative 2 turns northwest. Where the Alternative 4 alignment intersects the NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join the Alternative 2 alignment at milepost 37 just south of the Teton River. The Alternative 4 alignment would then cross the Teton River just east of the location described in Alternative 2. The alignment would rejoin the Alternative 2 alignment after crossing the Teton River.

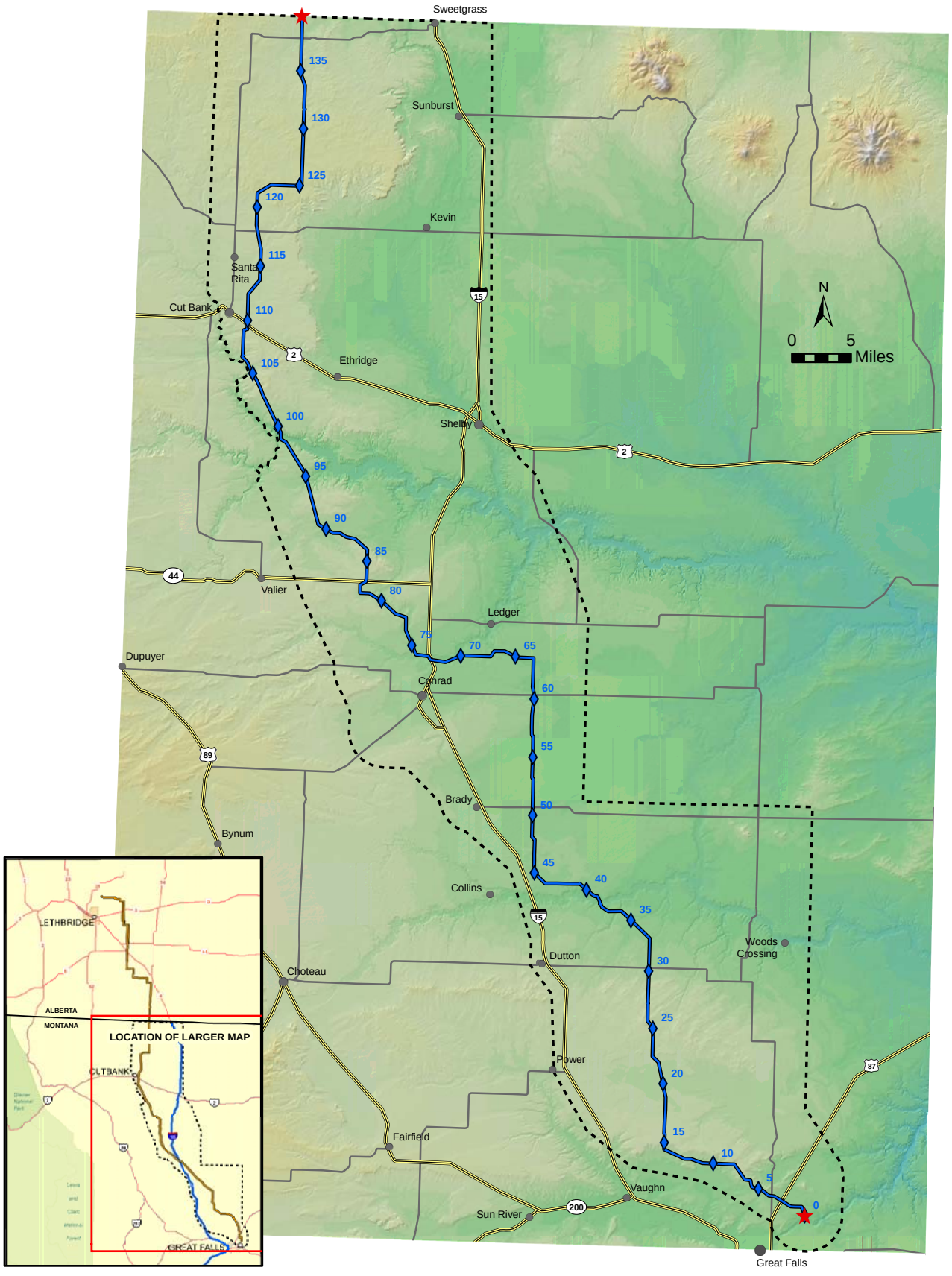


FIGURE 2.5-1
ALTERNATIVE 4 ALIGNMENT

LEGEND

- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_5-1_MATL_ALT4_Alignment All_020107_JA.mxd

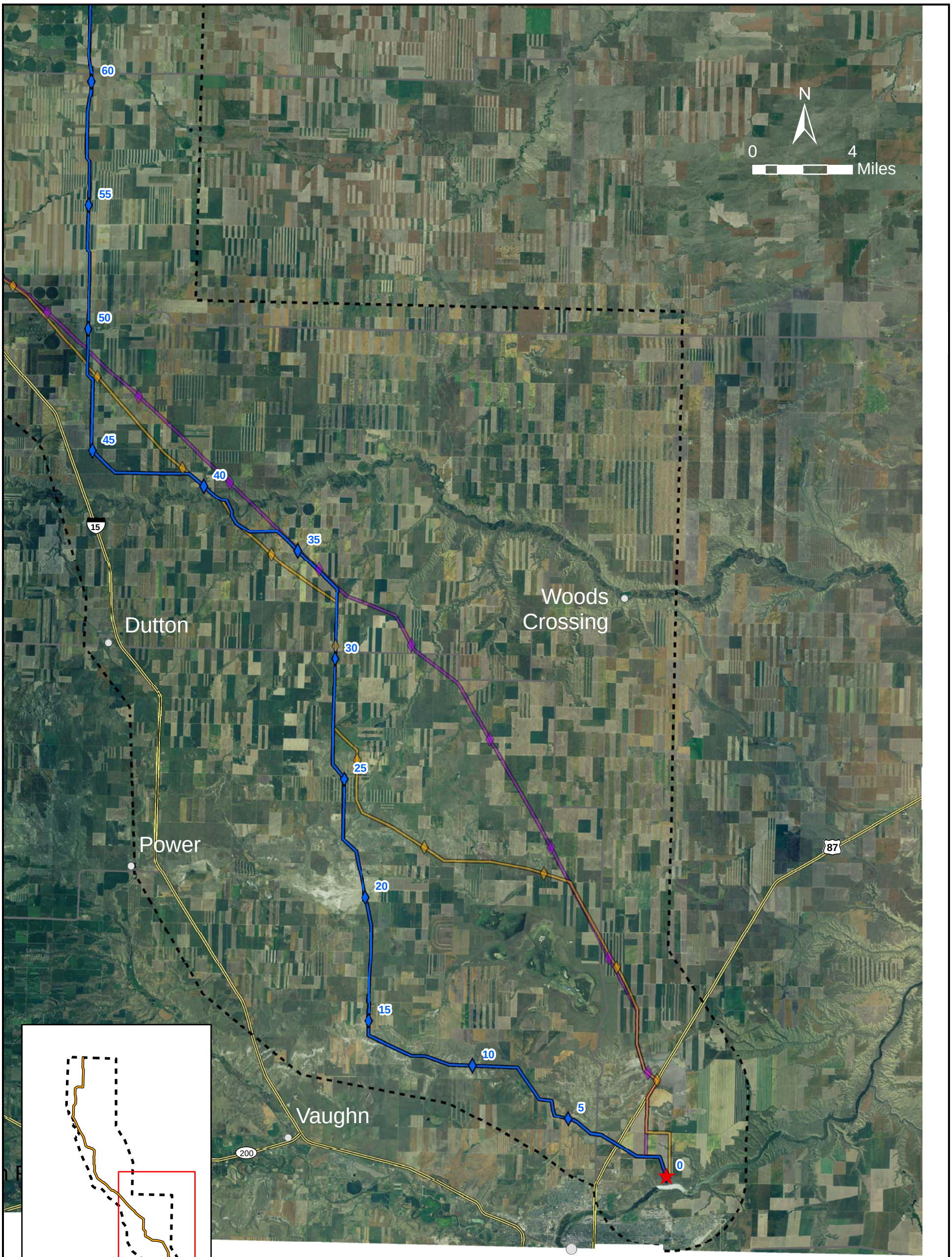


FIGURE 2.5-2
ALTERNATIVE 4 ALIGNMENT
SOUTH

LEGEND

- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
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GIS map by Ed Madej -TTEMI-HE Fig2_5-2_MATL_ALT4_Alignment_South_020107_JA.mxd

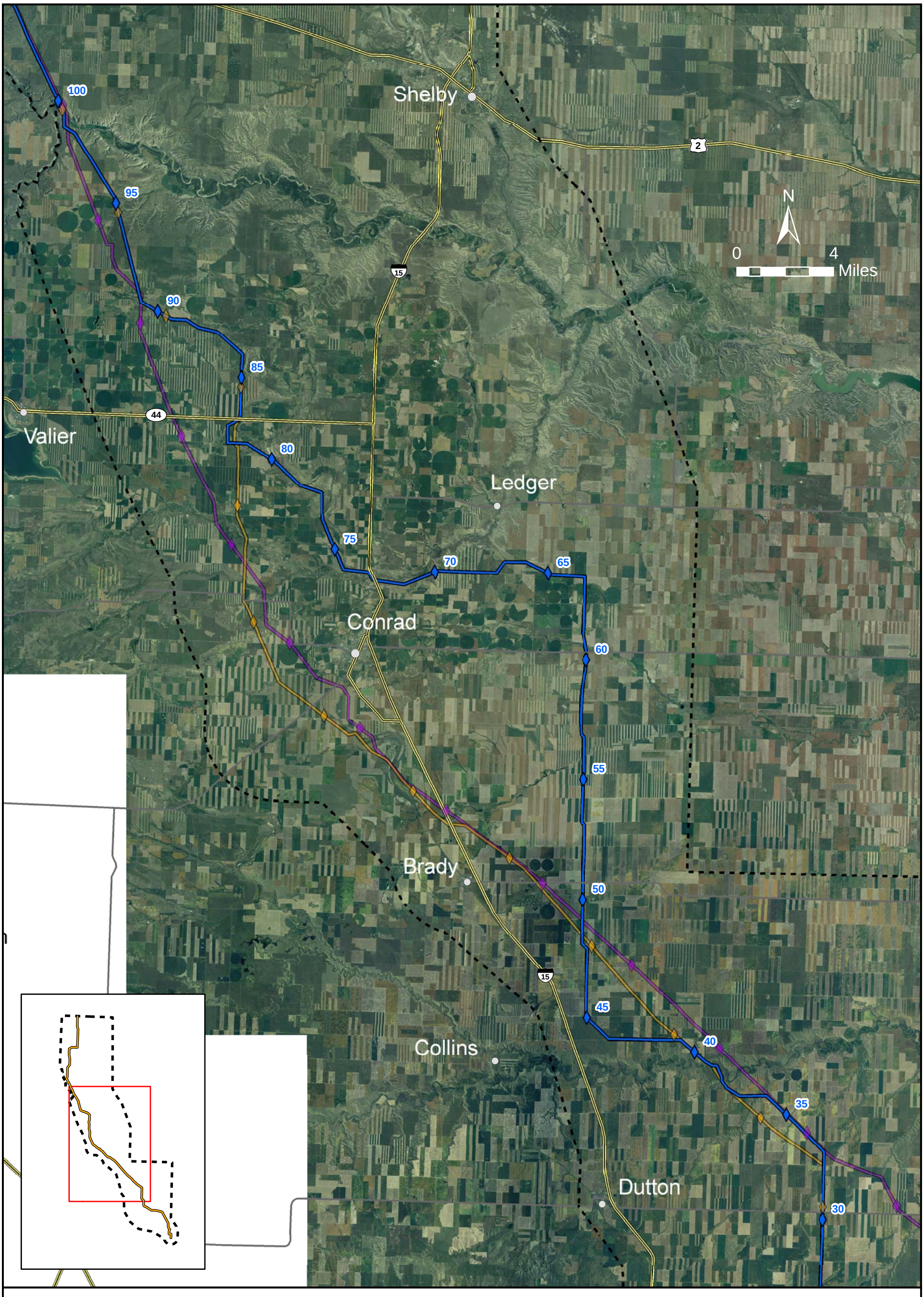


FIGURE 2.5-3
ALTERNATIVE 4 ALIGNMENT
MIDDLE

LEGEND

- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

NOTE:
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GIS map by Ed Madej -TTEMI-HE Fig2_5-3_MATL_ALT4_Alignment_Middle_020107_JA.mxd

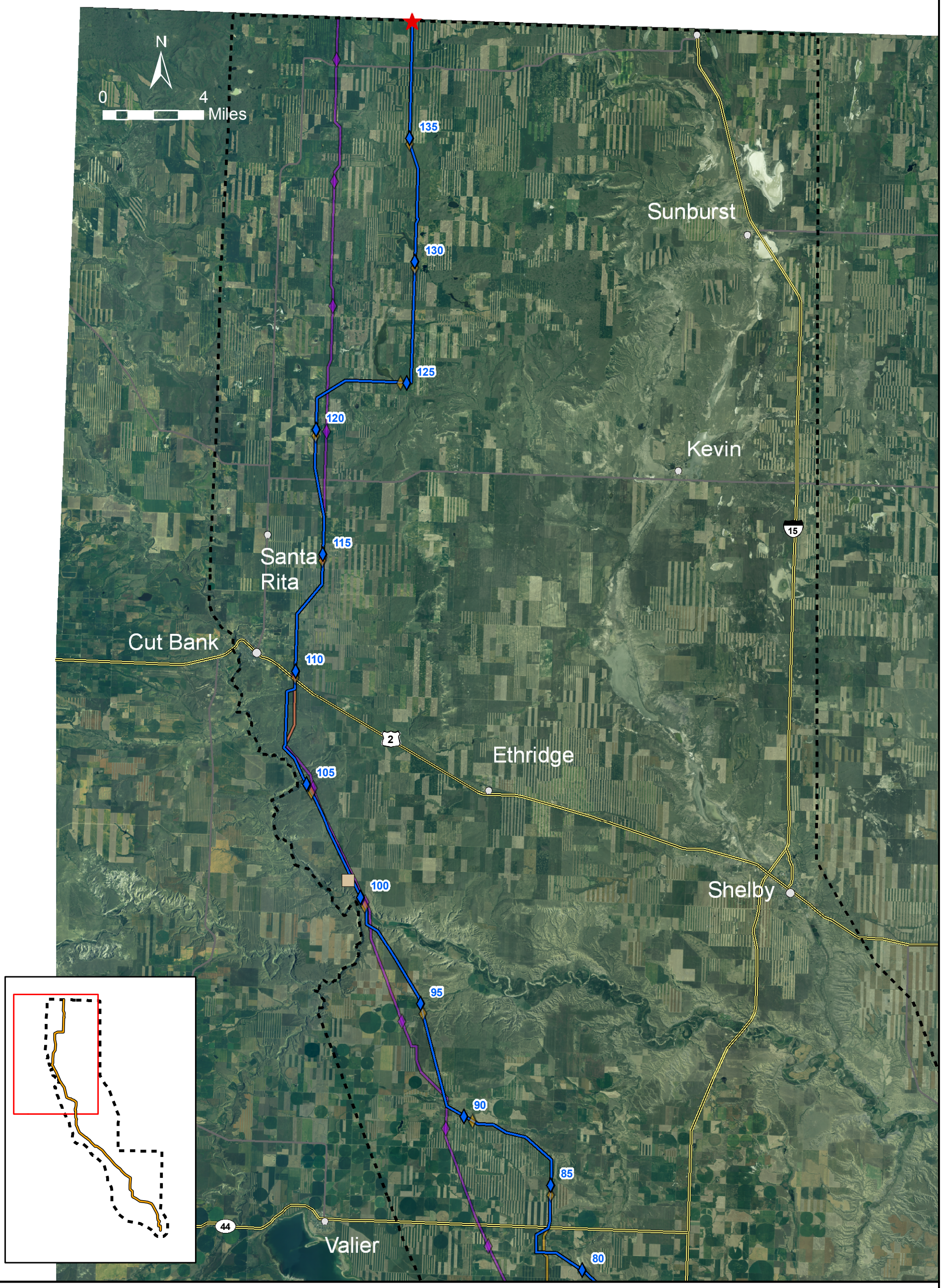


FIGURE 2.5-4
ALTERNATIVE 4 ALIGNMENT
NORTH

LEGEND

- ALT 4 - ALIGNMENT
- ALT 4 MILE MARKERS
- ALT 2 - ALIGNMENT
- ALT 2 MILE MARKERS
- ALT 3 - ALIGNMENT
- ALT 3 MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- MARIAS SUBSTATION

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig2_5-4_MATL_ALT4_Alignment_North_020107_JA.mxd

After paralleling Alternative 2 for about 2 miles, the Alternative 4 alignment would diverge from the Alternative 2 alignment approximately 8 miles southeast of Brady. After approximately 3 miles running directly west, Alternative 4 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it would intersect the Dry Fork of the Marias. The alignment would generally parallel the Dry Fork of the Marias River until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn west for approximately 1 mile before crossing Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. The portion of the alignment along Dry Fork of the Marias and Big Flat Coulee would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

After crossing Alternative 2 near milepost 73, the Alternative 4 alignment would run slightly west of the Alternative 2 alignment for about 1 mile, just north of Belgian Hill, and would be located farther away from four residences. The Alternative 4 alignment in this area would reduce visual impacts, although some diagonal crossing of farmland is required. The alignment then rejoins the Alternative 2 alignment around milepost 74.

Just south of Highway 2 near milepost 97, the Alternative 4 alignment would be located approximately ¼ mile west of Alternative 2 for a 2-mile stretch. This location would better follow property boundaries and be located farther away from residences. The Alternative 4 alignment rejoins the Alternative 2 alignment near milepost 99 and follows the Alternative 2 alignment north for approximately 30 miles to the border crossing.

Design Features of Alternative 4

In order to minimize impacts to farmland on croplands and CRP, the transmission line would use monopole construction design in areas used for croplands and CRP. Monopole construction design is shown in **Figure 2.3-6**. The design characteristics are summarized in **Tables 2.3-1 and 2.3-2**. The Alternative 4 alignment crosses 87.9 miles of cropland and CRP.

DEQ would apply environmental specifications to the Project (**Appendix F**). DEQ's draft Environmental Specifications identify general environmental protection measures and sensitive areas for site-specific specifications.

In addition to those sites described under Alternative 2, bird markers would also be used where recommended within ¼ mile of wetlands. To implement this measure, FWP and FWS biologists would be invited to field verify sites identified for markings.

To decrease the line's contrast and visibility, non-shiny conductors would be used. Steel monopoles would be self-weathering to decrease contrast.

In order to make the transmission line more visible to low flying aircraft navigating by the roads, ball markers would be used where the line crosses the following major roads: Interstate 15 and U.S. Highways 87 and 2. Marker balls would also be placed at all river crossings.

2.6 Related Future Actions

Related future actions are those related to the proposed Project by location or type. For this review, the potential that MATL would upgrade the capacity of the line from 300 MW north and 300 MW south to 400 MW north and 400 MW south (600 MW to 800 MW), wind farms, and other energy generation or transmission projects in northcentral Montana are discussed below.

Related Future Actions in Cascade, Teton, Chouteau, Pondera, Toole, and Glacier Counties

Future actions that could occur in the Project study area include the development of wind farms, a hybrid energy project (wind and biodiesel), and a new coal-fired power plant near Highwood. Depending on the scope and size of future wind farm developments, MATL could upgrade the total capacity of its transmission line from 600 MW to 800 MW.

MATL Sale of Transmission Capacity

MATL offered two opportunities (called open seasons) for potential generators to bid on the available capacity of the Project (300 MW each direction for a total of 600 MW). The first open season was held between February 3, 2005, and April 15, 2005. The second open season occurred between June 9, 2006, and June 30, 2006. Using the open season process, MATL has sold 600 MW of firm capacity on the proposed transmission line to four potential wind farms. The bids MATL accepted are summarized in **Table 2.7-1** below. Two of the potential wind farms have bowed out of the project. The four generation facilities listed in **Table 2.7-1** are related future actions; however, because the wind farm developers have not yet sold the power to utilities, cooperatives, or other customers, there is no guarantee that these projects will be built.

TABLE 2.7-1
BIDS ACCEPTED BY MATL

Company Name	Total Awarded MW	Direction of Power Flow	Contract Term (years)	Project Name, Location
Great Plains Wind and Energy	120	South to North, Cut Bank to Alberta	15	McCormick Ranch Wind Park, Glacier and Toole counties; Rim Rock Wind Farm, northwest Toole County
Wind Hunter LLC	120	North to South	25	Unnamed, unknown
Invenergy Wind Montana	180	North to South	25	Unnamed, unknown
GE Energy Inc.	Original = 175 Current = 0	North to South	15	GE wind has bowed out of the project. (Thornton 2006)
TransCanada Power	Original = 25 Current = 0	North to South	5	TransCanada has bowed out of the project (Railton 2006)

Notes:
MW = megawatt

Another related future action is the potential upgrade of the MATL line from 300 MW in each direction (600 MW total) to 400 MW in each direction (800 MW total). MATL may construct the line using conductors and insulators designed to carry the additional wattage. With increased line capacity, the electric field at the edge of the right of way would increase and the mean magnetic field would also be higher based on the increased wattage.

GE Energy had an agreement for 175 MW of firm transmission capacity with MATL (MATL 2006b) that would allow it to transmit power southward from Cut Bank to Great Falls, Montana. GE Energy and TransCanada did not respond during the second open season and have now backed out of the project (Railton 2006; Thornton 2006).

All firm shippers on the MATL line would have the ability to sell unused capacity to a secondary market during periods when they can not use their full capacity. Redirect rights would be available to other buyers and sellers of electricity from a wide variety of sources including coal, hydro, gas, biofuels, and nuclear sources. In theory, these sources of electricity may originate from anywhere within the western interconnect. MATL is planning on instituting an auction trading system for firm and non-firm capacity. MATL plans to purchase an Open Access Same Time Information System ("OASIS") from Open Access Technology International, Inc. The OASIS system would allow capacity owned by MATL or its firm customers to be auctioned to the highest bidder on a monthly, weekly, daily, and hourly basis.

Great Plains Wind and Energy – McCormick Ranch Wind Park

Great Plains Wind and Energy has an agreement for 120 MW of firm transmission capacity with MATL that would allow it to transmit power northward from Cut Bank into Alberta. According to MATL (MATL 2006b), in certain circumstances Great Plains Wind and Energy may use its "redirect rights" to transfer power from north to south. The McCormick Ranch Wind Park Project would be located between the Marias River north to Hjartarson Road and between McCormick and Sullivan Bridge roads. The 120-MW McCormick Ranch Wind Park on 12,000 acres in Glacier and Toole counties would have from 45 to 60 wind turbines. It is slated for production in 2007 or 2008. Once the construction is complete, it would take at least 15 technicians to run the project and maintain it 365 days a year.

Great Plains Wind and Energy – Rim Rock Wind Farm

This project is planned by Great Plains Wind & Energy. The Rim Rock Wind Farm would be located in northwest Toole County on 15,000 acres of privately owned land. This project potentially would be built in phases and would be capable of producing in excess of 200 MW of electrical power. It is planned for construction in mid-2007 through 2008. Power would possibly be transmitted over transmission systems owned by MATL, NWE, or WAPA. This project has the potential of being the largest production wind farm in Montana.

Wind Hunter, LLC – Unnamed Wind Energy Project

Wind Hunter, LLC has requested 120 MW of transmission capacity on the proposed line. Wind Hunter, LLC has proposed to construct, operate, and maintain a wind generation facility in Valley County, Montana, about 26 miles north of the city of Glasgow. Wind Hunter has expressed interest in constructing wind energy projects in the Cut Bank area.

Invenergy Wind Montana – Unnamed Project

Invenergy Wind LLC is headquartered in Chicago and has operational wind farms in four states including Montana. Its existing Montana wind farm, the Judith Gap Energy Center, is located in Wheatland County in central Montana. Invenergy is interested in constructing other wind energy projects in Montana, potentially in the Cut Bank/Shelby area.

Coal-fired Highwood Generation Station – Southern Montana Electric

Southern Montana Electric Generation and Transmission Cooperative, Inc. proposes to build a 250-MW coal-fired power plant and 6 MW of wind generation at a site east of Great Falls, Montana. The final EIS for this proposed project was released in January 2007 (USDA Rural Utilities Service and DEQ 2007).

2.7 Alternatives Considered But Dismissed

Several alignment and construction-detail alternatives were considered but eliminated from detailed study. A table listing these alignment alternatives is provided in **Appendix G**. Detailed analyses of these alignment alternatives under MFSA are provided in the MATL MFSA application (MATL 2006b). Alternatives considered but dismissed from further study, are discussed below, along with the rationale as to why each was eliminated from further study. Other local routing alternatives that were evaluated by DEQ are discussed in **Appendix A**.

Development of Alternative 4 (Possible Local Realignments)

During the development of Alternative 4, DEQ considered eight possible local realignments to address specific scoping issues. The eight local realignments are presented below as segments A1, A2, B1, B2, C1, C2, D, and E. In assembling Alternative 4 as a whole and addressing scoping issues, DEQ selected segments A1, B2, C1, the north half of D, and E. Alternative 4 is fully described in Section 2.5. As discussed in Section 2.5, the DEQ director may select only some of the segments included in Alternative 4 as mitigations to address land use and visual resource issues. Therefore, all of the segment descriptions are included here for information. DEQ's analysis of these segments and the information that helped in the selection of segments for Alternative 4 are included in **Appendix A**.

West Great Falls Realignment Segment A1

Alternative segment A1 is an alignment that would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of farm land, where possible. Where Alternative 2 would go directly north out of the Great Falls switch yard, segment A1 would take a west-northwesterly path out of Great Falls paralleling the railroad and WAPA 230-kV transmission line, making use of an existing transportation corridor. The segment A1 alignment would head west and then north along the railroad and rejoin Alternative 2 where it leaves 8th Road. Segment A1 is the only segment that would run south and west of Benton Lake National Wildlife Refuge.

Shooting Sports Complex Realignment Segment A2

Approximately 1½ miles north of Great Falls, Alternative 2 would turn directly west for a mile and then run directly north along the west side of the Great Falls Shooting Sports Complex. Segment A2 is a 4.2-mile-long alignment that would continue directly north from Great Falls along the edge of cropland and parallel to the access road on the east side of the Great Falls Shooting Sports Complex. The alignment would parallel the existing 161-kV NWE transmission line between Great Falls and Havre. Segment A2 would rejoin Alternative 2 where it crosses Highway 87. This alignment would minimize crossing of farmland.

Diamond Valley Right Angle Realignment Segment B1

Segment B1 is a 5.9-mile-long alignment addressing the area in Teton County 2 to 5 miles south of the Teton River. In the headwaters of Kinnerely Coulee, segment B1 would run directly north where Alternative 2 turns northwest. After running directly north for approximately 2½ miles, segment B1 would turn directly west running approximately 3 miles until it would rejoin Alternative 2 in the vicinity of Hunt Coulee. This alignment would avoid diagonal crossing of farm land.

Diamond Valley and Teton River Realignment Segment B2

Segment B2 is a 6.5-mile-long alignment that would diverge from Alternative 2 at the same location as segment B1. Where the segment B2 alignment intersects the Alternative 3 alignment and existing NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join Alternative 2 just south of the Teton River. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing. Segment B2 would then cross the Teton River just east of the location described in Alternative 2. Segment B2 would address a landowner concern over opening a new corridor rather than paralleling an existing line which already has disrupted farming practices in some fields.

Brady Frontage Road Realignment Segment C1

Segment C1 is a 15-mile-long realignment that would diverge from Alternative 2 approximately 8 miles southeast of Brady. Segment C1 would run directly west from the Alternative 2 along the northern edge of the Teton River bank to the Interstate 15 frontage road, and follow the frontage road for about 11 miles, past the town of Brady to rejoin Alternative 2 about 2 miles north of Brady. Segment C1 would closely parallel the existing transportation corridor of Interstate 15 and the frontage road. Segment C1 would decrease crossing of farmland and avoid paralleling one pipeline, but still would roughly parallel a second pipeline.

Conrad Realignment Segment C2

Segment C2 is a 41-mile-long realignment that would diverge from Alternative 2 at the same location as segment C1. After approximately 3 miles running directly west, segment C2 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it intersects the river. The alignment generally parallels the Dry Fork of the Marias until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn due west for approximately 1 mile before rejoining Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. This segment would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

Belgian Hill Realignment Segment D

Segment D is a 2.8-mile-long realignment that would move the alignment slightly west from the Alternative 2 alignment for 2 miles, just north of Belgian Hill, farther away from four residences. The alignment would generally parallel Alternative 2. Segment D would result in greater potential for general local acceptance. This segment would reduce visual impacts. Some diagonal crossing of farmland would be required.

South of Cut Bank Realignment Segment E

Segment E is a 2.5-mile-long realignment that would move the alignment approximately ¼ mile west for a 2-mile stretch, just south of the Alternative 2 intersection with Highway 2. Segment E would move the alignment to follow property boundaries better and is located farther away from residential areas and result in greater potential for general local acceptance. Segment E would generally parallel Alternative 2.

MATL C Alignment

MATL C was presented in the MFSA application (MATL 2006b). The alignment covers 136 miles. The MATL C alignment diverges more from the Alternative 2 proposed Project alignment than the Alternative 3 alignment and is the longest of the alignments MATL presented. The MATL C alignment diverges from Alternative 2 at mile 7 to follow existing north-south and east-west state highway and county road rights of way. The MATL C alignment continues north, changes direction around the eastern side of Woods Crossing, and then goes north for about 16 more miles. The MATL C alignment then goes west towards the town of Brady, south of which it parallels Alternative 2, remaining about 2 to 4 miles east of Alternative 2. North of Conrad, MATL C gradually moves closer to Alternative 2 until joining it at Cut Bank. North of Santa Rita, the MATL C alignment diverges from Alternative 2, heading northwest where Alternative 2 heads north, and cutting across Alternative 2 to head north where Alternative 2 heads east. The border crossing for MATL C is about 1 mile west of the Alternative 2 border crossing.

This alternative was dropped from further consideration because it did not fully address issues raised during scoping. Although it would reduce the total miles of diagonal crossing of farm land, compared to MATL's proposed alignment, MATL C would have crossed more farm land diagonally along the portion beginning south of Brady and continuing to approximately 10 miles north of Conrad. Use of the MATL C alignment would have impacts to visual resources from its alignment very close to several residences. The MATL C alignment would not use as much range and pasture land, or parallel existing transmission lines as much as similar alignments developed by MATL and DEQ west of Great Falls. The Alternative 2 segment west of Great Falls

would more closely parallel an existing transmission line than would the MATL C alignment.

Building the Line Underground

As discussed in Chapter 3, overhead transmission lines and associated support structures interfere with some land uses. Burying the line underground would reduce long-term visual impacts and may reduce long-term impacts for some land uses such as farming. Underground lines would still require ground disturbance. An underground line would be less susceptible to weather related outages.

Underground 230-kV lines would cost between 2 and 15 times the amount required to build an overhead line (Georgia Transmission Corporation 2006; Verbund 2006). Cost to build underground may be slightly more than $1 million per mile (Energy Central News 2007), compared with MATL's estimate of about $293,500 per mile using H-frame structures.

Digging trenches to bury the lines would result in greater construction disturbance to the land and would require greater time to install. Above ground access vaults would need to be constructed as well as above ground structures at line termination points. Buildings on the alignment would be restricted. Vegetation may have to be restricted to avoid reducing soil moisture that is needed to cool the transmission line. Problems with underground systems would also be more difficult to locate and repair. Studies indicate that EMF levels from power lines buried underground are similar to EMF levels for power lines above ground (NIEHS 1999).

Unguyed, Self-Supporting Angle and Dead-End Structures

Changes in direction and dead-ends on a transmission line require additional support in the form of guy lines or bulkier self-supporting structures. Guy wires can increase interference with farm equipment and take additional land out of cultivation compared to non-guyed structures, resulting in increased land use impacts. Eliminating the use of guy lines would reduce some of the impacts on land uses. However, this alternative was dismissed because of the higher costs for these self-supporting structures compared to guy wires.

Requiring the Use of Helicopters to String the Line

The use of helicopters may avoid construction of some access roads. Helicopters are most frequently used in extremely hilly terrain or large marshy areas where access is difficult. Using helicopters to string the conductors would create an additional expense. Using helicopters would not eliminate any of the work for the stringing crew, and it would not eliminate the installation of sheaves (pulleys used to string the line). Special

sheaves would need to be purchased or rented so that the conductor and ground wires could be installed from the air. Access roads would still be needed for maintenance over the life of the line. This alternative was dismissed because most of the study area is accessible from the ground.

Requiring Monopole Structures in all Areas

A monopole design would reduce some interference with land uses that the H-frame design would have. MATL has indicated that monopole designs would be 11 to 18 percent more expensive on average to build. The use of monopoles in all areas was dismissed, but use of monopoles as a mitigation applicable to CRP and croplands is being considered.

Northwest Alternatives

Alignment selection from the U.S./Canada border to Cut Bank, approximately 25 miles south, required MATL to consider several alternatives. Alternative border crossing locations were dismissed based on routing conditions in Alberta. Alternative alignments between the border and Cut Bank were dismissed based on land use criteria such as: avoidance of occupied residences, an abundance of prairie pothole wetlands, and avoidance of Blackfeet Reservation land.

Eastern Alternative

MATL conceptually considered a Canada/U.S. border crossing near the Coutts/Sweet Grass Port-of-Entry along U.S. Interstate 15. Alignment alternatives considered in this vicinity would parallel Highway 4 from Lethbridge to Coutts/Sweet Grass, and roughly follow Interstate 15 from the border south to Shelby. This alignment would have afforded the project an opportunity to maintain infrastructure development in a common corridor, as well as avoiding protected lands in the Milk River Hills of southern Alberta.

South of Shelby, the eastern alternative would have traveled diagonally cross-country to the southeast for a distance of approximately 12 miles before heading directly south for almost the entire remaining distance to its tie-in at NWE's 230-kV switch yard north of Great Falls. Several factors contributed to MATL's dismissal of the eastern alternative including:

- In southern Alberta, the Eastern Alternative would potentially compromise the safety control system on the rail line that parallels Highway 4.
- Land development patterns in southern Alberta and in the Shelby area would necessitate the use of a stairstep-like centerline resulting in increased distances and numerous angle structures requiring guy wires.

- The topographically rugged "breaks" of the Marias River occur approximately 6 miles south of Shelby. The steep and highly eroded topography at this crossing location is relatively wide (approximately 6 to 7 miles) and would result in additional project costs to meet engineering challenges.
- The Marias River breaks area is relatively undisturbed, which presents the potential for a greater number of archaeological sites.

Cut Bank to Shelby Alternatives

MATL would build the line to Cut Bank and then to Shelby and tie into WAPA's system there in order to complete a transmission path to Great Falls. In that way, energy producers or other subscribers that would need to move power south on the line would pay MATL a transmission tariff to get the power to Shelby and then would have to pay WAPA's tariff to move power from Shelby to Great Falls. WAPA's tariff of $2.69 per kW-month (kW/Mo.) would represent a substantial increase in the cost of transmission for users of the proposed line over paying the MATL tariff alone. MATL's varying tariffs on its line, which were bid by successful shippers in two open seasons, range from $3.01 kW/Mo. to $4.04 kW/Mo.[1] These two rates together would almost double the total tariff in certain cases and would likely price most subscribers out of using the line.

In a variation of this alternative, MATL and WAPA would cooperatively rebuild portions of the current WAPA Shelby-Great Falls 230-kV line, thereby creating a double circuit transmission line in certain parts of the path. WAPA cannot agree to this. A double circuit line would lower reliability for the operating system. The loss of one structure would affect both circuits. The loss of a structure on one of two parallel single circuit lines would affect just one circuit. WAPA also has reservations about building a parallel line in the same right of way as its Shelby-Great Falls route due to the potential for induced current between two lines located close to one another.

Besides the increased tariffs and decreased line reliability, these alternatives were dismissed because of operating limitations of WAPA's "West Control Area." These limitations are due to WAPA's lack of additional generation capacity reserves on its system that would be needed to support the wind projects proposed for the MATL project. The hydroelectric generators at Fort Peck Dam are the primary sources of these "regulating reserves" on the west system, and generation capacity is severely limited by the current drought conditions and resultant stream flow limitations.

1 *http://www.matl.ca/documents/Transmission%20requests%20July%2014,%2006.pdf*

NWE 115-kV Transmission Line Rebuild Alternative

Combining MATL's transmission line with NWE's existing 115-kV line would minimize potential environmental impacts. With that impetus, MATL considered rebuilding and updating, as necessary, NWE's existing 115-kV transmission line between Cut Bank and Great Falls and engaged in discussions with NWE regarding its feasibility. This rebuild alternative proved prohibitive based on the logistics of maintaining service while the line was being rebuilt and upgraded and the economics associated with a partnership and existing line rebuild.

3.0 Affected Environment and Environmental Impacts

Information presented in this chapter describes the relevant resource components of the affected environment. Only resources that could be affected by the alternatives, or that could affect the alternatives if implemented, are described. Data and analyses presented in these sections correspond with the importance of the impact and with concerns raised during the scoping process. The following resource areas are presented in this chapter: land use and infrastructure, geology and soils, engineering and hazardous materials, electric and magnetic fields, water, wetlands, vegetation, wildlife, fish, threatened and endangered species, air quality, noise, socioeconomics, cultural resources, visuals, and the transmission grid. Section 3.17 summarizes the findings DEQ must make to certify the project under MFSA.

The location and extent of the affected environment for the alternatives depend on the resource under evaluation. For most resources, the affected environment analysis area for the transmission line is the 500-foot-wide alignment for each alternative. Where affected environment resource analysis areas extend beyond the construction area, the extended area is described at the beginning of the resource area section, and in many cases corresponds to MATL's study area (MATL 2006b) shown in **Figure 1.1-1**.

After the affected environment for each resource has been described, the impacts of the Project and alternatives are discussed, including the direct and indirect impacts, and short-term and long-term impacts. Short-term impacts are defined for this project as those that would take place during the construction phase. The construction phase is expected to last six months. Long-term impacts are defined for this project as those that would take place during the operation and maintenance of the line. The cumulative impacts for each resource are discussed in Chapter 4. Chapter 4 also includes a discussion of unavoidable adverse impacts and irreversible and irretrievable commitments of resources. The text includes detailed descriptions for impacts and resources relevant to identified issues of concern (Section 1.6).

3.1 Land Use and Infrastructure

This section describes the human use of the land for economic production, and for residential, recreational, or other purposes.

3.1.1 Analysis Methods

Quantitative analysis of the number of miles included in a transmission line alignment, and the associated number of acres and land use was based on Geographic Information System (GIS) analysis of the action alternatives. Assumptions needed for GIS analysis included:

- Existing land uses were developed from interpretation of orthophotographs (aerial photographs with distortion removed) taken in 2005 (Montana NRIS 2006a). Some land uses may have changed since the photographs were taken. **Appendix H** presents land use by milepost for each alternative.

- Existing ownership information was developed from county plats and other sources. Information is believed to be accurate and up to date. However, some recording errors may have occurred, or lands may have been sold since the GIS information was developed.

Analysis Area

The analysis area for land use and infrastructure is the study area defined in MATL's permit application (MATL 2006b). Detailed analysis was conducted along the 500-foot-wide transmission line proposed alignment and alternatives.

Information Sources

Data and information for this section were compiled and refined from several sources including, but not limited to, computer assisted mass appraisal (CAMA), GAP Analysis data, and photographic interpretation and other sources. MATL verified this information by ground reconnaissance during July and August 2005. In addition, MATL contacted federal, state, and local regulatory personnel by telephone and in person to validate existing information and to solicit additional information. This information was included in the MFSA application (MATL 2006b).

DEQ also verified land use information in the summer of 2006 by:

- conducting a general reconnaissance field trip of the alignments from Great Falls to the U.S.-Canada border,

- field verifying physical features and land uses along portions of the alternatives by driving along the alignments, recording observations, and taking periodic Global Positioning System (GPS) readings, and
- overlaying the alignments on 2005 orthophotographs (Montana NRIS 2006a) and documenting visible land uses by milepost (See **Appendix H**).

The land uses documented included: mechanically irrigated cropland, non-irrigated cropland, rangeland/native vegetation, forest, residential, existing rights of way, riparian habitat, and water. Information was generally mapped at a scale of 1:24,000.

Information describing the existing transportation and utility networks was obtained from the MFSA application (MATL 2006b) or from Mr. Jim McDonald, Teton County road foreman. Details regarding farm tractors and tillage equipment were obtained from an interview with Mr. Bruce Broesder, service warranty writer for Torgersons, Inc. in Great Falls, and timelines for planting and harvesting were obtained from Mr. Sherwin K. Smith, Executive Director of the Teton County Farm Services Agency in Choteau. Mileages were derived from GIS.

3.1.2 Affected Environment

The following land uses and ownership categories are described in this section:

- Cities, towns, unincorporated communities,
- Developed residential, industrial, and commercial areas adjoining cities and towns,
- Federal and state highways and county roads,
- Railroads and railroad rights of way,
- Existing electric transmission lines,
- Communication facilities,
- Military installations,
- Conservation easements,
- Public and private airports,
- National trails,
- Farmland differentiated by irrigated cropland, mechanically irrigated cropland, non-irrigated cropland, rangeland/native vegetation, and conservation reserve program,
- Mines, and
- Land ownership categories (federal, state, tribal, private).

Land Ownership

Figures 3.1-1, 3.1-2 and **3.1-3** show land ownership in the south, middle, and north parts of the analysis area. **Table 3.1-1** summarizes the proportion of land ownership and jurisdiction within the analysis area (Montana Natural Resource Information System [Montana NRIS] 2006a). The majority (89.7 percent) is privately owned, with the remainder owned or managed by state, federal, and local government agencies. A discussion of public land management, relative to facility siting, is provided below.

TABLE 3.1-1
LANDOWNERSHIP AND JURISDICTION WITHIN ANALYSIS AREA

Ownership	Percent of Analysis Area
Local Government	0.3
Private	89.7
Right of Way	0.6
State Government	6.7
Tribal	0.0
Undetermined	0.0
U.S. Department of Agriculture	0.0
U.S. Department of Defense	0.1
U.S. Government	0.0
U.S. Department of Agriculture Forest Service	0.0
U.S. Department of the Interior Bureau of Land Management	1.5
U.S. Department of the Interior Fish and Wildlife Service	0.5
Water	0.5
Total	100.0

Source: Montana NRIS 2006a

Land Use Categories

Land use categories described in this section are: residential, commercial and industrial, agricultural, publicly managed, and conservation easements.

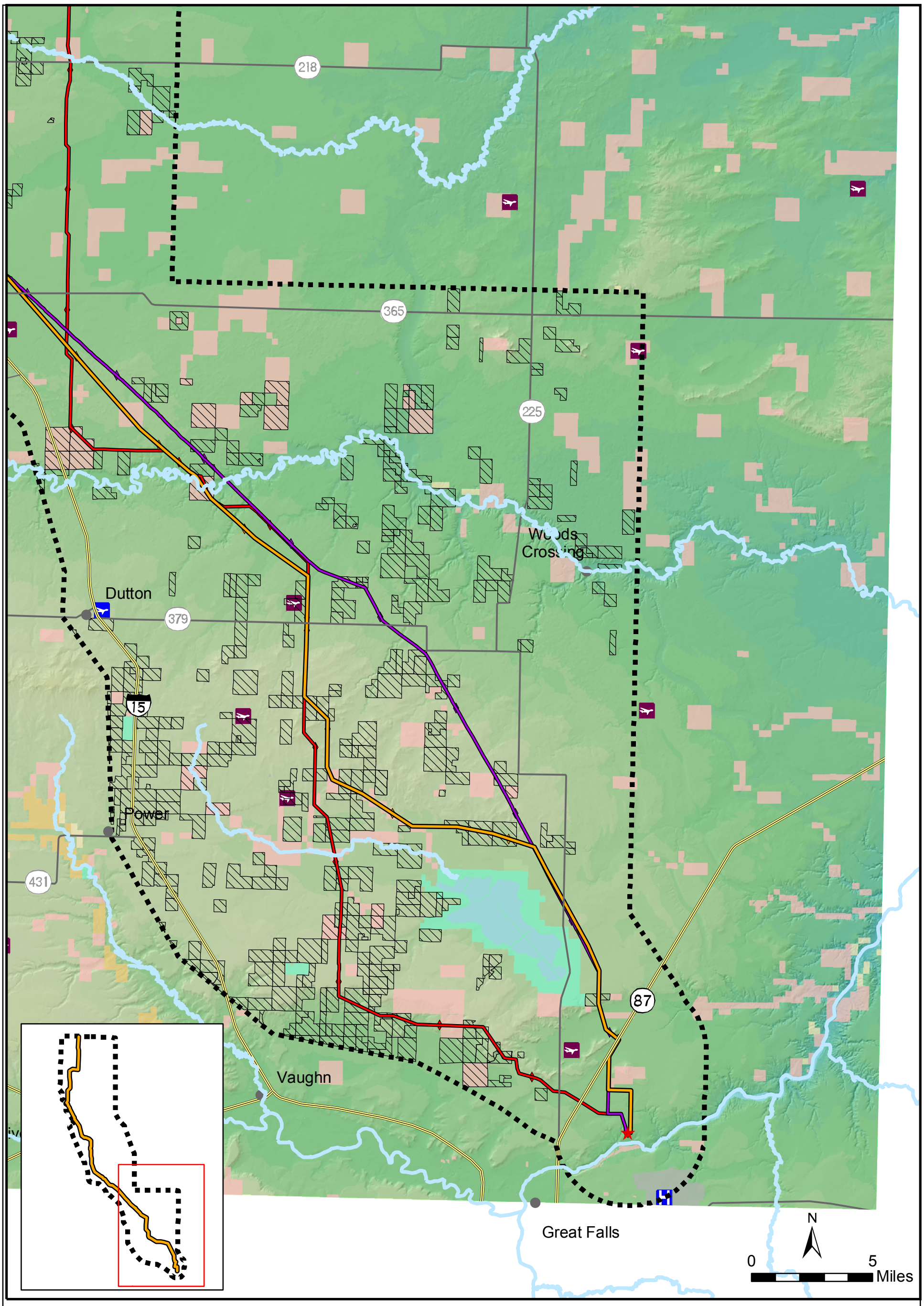


FIGURE 3.1-1
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
SOUTH

LEGEND

Ownership
- Tribal
- State Government
- US Depart of Agriculture
- US Depart of Defense
- USDA Forest Service

- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- US Government - Other
- Water (NHD)
- Conservation Reserve Program

- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

- Paved Public Airport
- Unpaved Public Airport
- Private Airstrip
- Heliport

GIS map by Patricia Williams -TTMTI 3-1-1-LandUseAnalysisArea-South.mxd

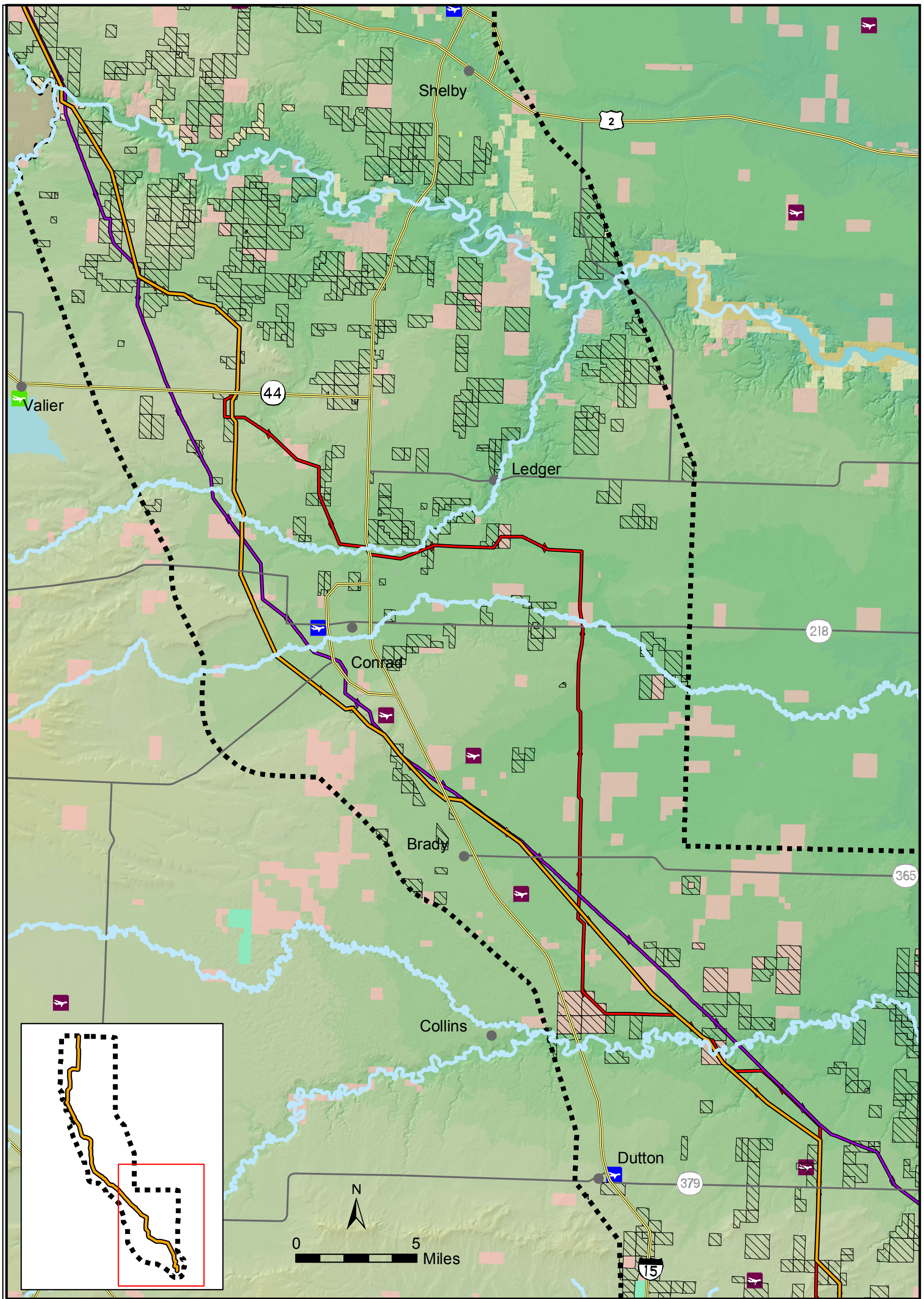


FIGURE 3.1-2
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
MIDDLE

LEGEND

Ownership
- Tribal
- State Government
- US Depart of Agriculture
- US Depart of Defense
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- US Government - Other
- Water (NHD)
- Conservation Reserve Program

- Paved Public Airport
- Unpaved Public Airport
- Private Airstrip
- Heliport

- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-1-2-LandUseAnalysisArea-Middle.mxd

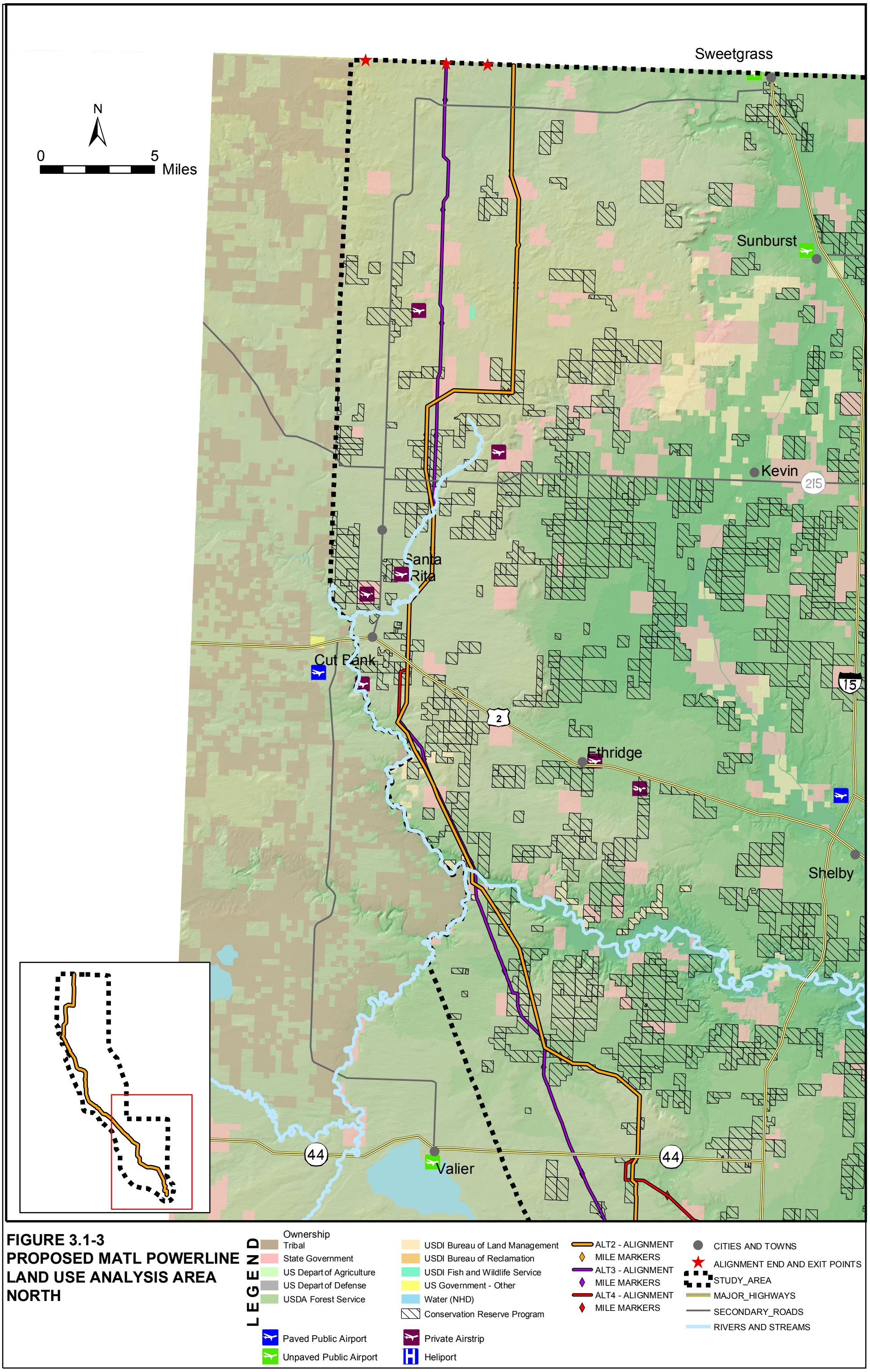


FIGURE 3.1-3
PROPOSED MATL POWERLINE
LAND USE ANALYSIS AREA
NORTH

LEGEND

Ownership
- Tribal
- State Government
- US Depart of Agriculture
- US Depart of Defense
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- US Government - Other
- Water (NHD)
- Conservation Reserve Program

- Paved Public Airport
- Unpaved Public Airport
- Private Airstrip
- Heliport

- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-1-3-LandUseAnalysisArea-North.mxd

Residential

Residential land use in the analysis area includes cities, towns, colonies, residential clusters (for example, unincorporated subdivisions), and dwellings (for example, farm or ranch houses). In addition, several Hutterite colonies are located within the analysis area. Cities and towns within the analysis area are:

- Great Falls, in Cascade County,
- Power and Dutton, in Teton County,
- Conrad and Brady, in Pondera County,
- Shelby, Sunburst, and Sweetgrass, in Toole County, and
- Cut Bank, in Glacier County.

With the exception of Cascade County, no land use zoning rules currently apply in the analysis area and no planned subdivisions are currently proposed for future construction in analysis area portions of Glacier, Toole, or Pondera counties (Yeagley 2006). In the Cascade County portion of the analysis area, no planned subdivisions occur (MATL 2006b). In Teton and Chouteau counties, there is no zoning and there are no planned residential developments in the analysis area (MATL 2006b).

Commercial and Industrial

Commercial and industrial activities (linear/point facilities) within the analysis area include communication facilities (cellular telephone and microwave), oil and gas production, surface mining (gravel pits), airstrips (public and private), railroads, pipelines and transmission lines, roadways, and military installations (MATL 2006b). Primary concentrations of communication sites occur in the vicinity of Great Falls, Shelby, and Cut Bank, although individual facilities are distributed throughout the area. Existing commercial and industrial businesses within the study area were located based on parcel information in the CAMA database.

Oil and gas production facilities occur primarily in the northern half of the analysis area and consist of pump and compressor stations, collector and transmission pipelines, meter stations, industrial or processing plants, and product storage tanks, both above and below ground (MATL 2006b). Most oil and gas facilities are associated with production and processing of natural gas or propane, though approximately one-third are associated with crude oil (MATL 2006b).

Several public and private airports or airstrips occur within the analysis area. Public airports include those associated with the towns of Sunburst, Shelby, Conrad, and Dutton (MATL 2006b).

Agricultural

Of the 1,444,790 acres in the analysis area, approximately 1,277,000 acres (88 percent of the analysis area) are considered agricultural lands, including irrigated and non-irrigated cropland and rangeland. **Table 3.1-2** summarizes the proportion of different agricultural land uses in the analysis area. Agricultural lands are almost entirely on privately owned land; however, some dry land crops and grazing occur on public lands within the analysis area.

Irrigated croplands include those croplands irrigated using flood, pivot, and wheel and hand line irrigation systems. Crops grown on irrigated fields in the region are typically hay and alfalfa. Non-irrigated crops are predominately drought resistant cereal grains (MATL 2006b).

TABLE 3.1-2
AGRICULTURAL LANDS IN THE ANALYSIS AREA

Farmland Use	Percent of Farmland[a] in Analysis Area
Irrigated Cropland	4.2
Dry Land Crops	68.7
Grazing	26.9
Wild Hay or Alfalfa	0.1

Notes:

[a] Percentage is based on the percent of parcels where all or a portion of the parcel is in the analysis area. Some parcels may indicate irrigated acres, but those acres may occur outside the analysis area. The "farmland use" category is associated with the parcel, but the location of the type is not mapped within the parcel.

Source: Montana NRIS 2006a

Management of agricultural lands includes the use of GPS guided equipment and vehicles and equipment used for irrigation, aerial and ground based spraying, mechanical plowing, seeding, fertilizing, and harvesting. Some ground based equipment has "booms" extending 90 feet on either side. These activities occur on 73 percent of the analysis area.

Publicly Managed Land

The overall Project area contains about 10 percent public lands (**Table 3.1-1**). Of these public lands, most are managed by the DNRC, FWP, BLM, and FWS (see **Figures 3.1-1, 3.1-2**, and **3.1-3**).

The State of Montana has jurisdiction over 97,318 acres within the analysis area, the majority of which is under jurisdiction of DNRC as school trust parcels. These Montana state trust lands are administered and managed for the benefit of the public schools and

the other endowed institutions under the direction of the Montana State Board of Land Commissioners. The real Estate Management Bureau of DNRC's Trust Land management Division is responsible for processing applications for rights of way and easements across surface lands and navigable waterways administered by the state.

FWP manages several wildlife management areas, fishing access sites, and other wildlife and recreation areas.

The primary federal agencies with lands within the analysis area are the BLM and FWS. BLM managed land is located in scattered parcels throughout the northern half of the analysis area (**Figures 3.1-1, 3.1-2**, and **3.1-3**). Right-of-way permits for crossing U.S. BLM managed land are managed by the BLM Lands and Realty office and approved following the appropriate Resource Management Plan compatibility assessment and NEPA review process.

The FWS has management authority of the Benton Lake National Wildlife Refuge, located approximately 10 miles north of Great Falls. FWS also manages three waterfowl production areas (WPA) in the analysis area, one located approximately 6 miles west of Benton Lake, one located approximately 12 miles northwest of Benton Lake, and one located approximately 15 miles northeast of Cut Bank (**Figures 3.1-1, 3.1-2,** and **3.1-3**).

The analysis area also contains several properties owned by the U.S. Department of Defense (**Figures 3.1-1, 3.1-2,** and **3.1-3**). The primary use of such properties is managed by Malmstrom Air Force Base (CAMA 2006).

Final siting of the transmission line on public lands would require MATL to obtain permits from state or federal agencies for rights of way or easements, and would likely require compatibility assessments with these agencies to ensure that localized alignment decisions are made in accordance with the relevant management plans.

Conservation Easements

Within the analysis area are private lands managed under conditions detailed in conservation easements held by both FWS and the USDA Farm Services Agency. FWS holds several acres of wetland easements on private land in the northern portion of the analysis area. Approval to locate facilities within areas managed under wetland easement by FWS is determined by a compatibility review process, which takes into account proposed facility location and access relative to wetland avoidance on the parcel under easement.

FWP currently holds the Lewis and Clark Heritage Greenway Conservation Easement on about 2,400 acres owned by PPL Montana adjacent to the southern boundary of the analysis area. The purpose of the easement is to protect and enhance the open space,

natural, and visual resources, when consistent with hydropower production and power transmission activities. The switch yard in which all alternatives would terminate is located on the northern edge of the easement.

The Farm Services Agency holds CRP easements on several thousand acres within the analysis area (**Figures 3.1-1, 3.1-2,** and **3.1-3**). CRP contracts between the Farm Service Agency and private land owners typically preclude agricultural activities on land managed under the program. Facility siting on CRP contracted land requires a compatibility review by the Farm Service Agency to determine a facility's potential impact to the CRP status of the affected property. Haying and grazing of CRP acreage are authorized under limited conditions (USDA Farm Service Agency 2006):

- Managed haying and grazing are authorized no more frequently than 1 out of every 3 years after the CRP cover is fully established. CRP participants requesting managed haying and grazing are assessed a 25 percent payment reduction except when conducted in an "emergency" area.
- Emergency haying and grazing of CRP acreage may be authorized to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.

Existing Roadway Network

Highways and roads present in the analysis area include the following:

- Federal and state highways
- Paved secondary state highways and county roads
- Improved county roads
- Unimproved roadways

Interstate 15 runs west from Great Falls to Vaughn and then north to the farming communities of Power, Dutton, Brady, and Conrad, and then to Shelby and the Border crossing at Sweet Grass. At Cut Bank the proposed power line would cross U.S. Highway 2, the primary east-west highway along the Hi-Line. North of Great Falls, the proposed power line would cross U.S. Highway 87. The analysis area includes 124 miles of Interstate 15.

Numerous secondary roads are also in the analysis area and include paved federal and state highways and improved (paved) county roads. These roadways run east-west (for example, MT 219 from Conrad to Pendroy) and north-south (for example MT 214 from Cut Bank north to Santa Rita and beyond). There are 86 miles of federal and state highways in the analysis area.

Improved county roads are primarily gravel roadways that serve rural residents. These roadways, in conjunction with improved secondary roads, provide the transportation infrastructure for ranchers and farmers within the Project area. These roads are vital to rural residents, and their use includes hauling grain and cattle and moving large farming tractors and implements. Unimproved roadways are those two-track roads that provide the farmer or rancher with access to and within their owned or leased land. There are approximately 2,346 miles of improved and unimproved county, city, and local roads in the study area.

With the exception of Interstate 15, U.S. Highways 2 and 87, and some sections of the secondary road system, the basic road infrastructure in the study area has changed little in the last 40 to 50 years. Federal and state highways have load restrictions specific to length, width, height, and weight of the transported load. Any exceedance of these criteria requires a single trip permit from MDT.

Most of the county roads have 24-foot-wide graveled driving surfaces (McDonald 2006). Some road shoulders and county bridges may not be suitable for heavy loads (McDonald 2006).

Railroad Facilities

The Burlington Northern and Santa Fe Railway northern tier mainline parallels, for the most part, U.S. Highway 2 through the project area from Shelby to Cut Bank. A north-south line runs from Great Falls through Power and on to the border at Sweet Grass (MATL 2006b). Two branch lines, one to Choteau and another to Valier serve the agricultural producers in those areas. Within the analysis area there are 171 miles of railroad.

Pipeline Facilities

Many existing pipelines serve the oil and gas producers traverse the project area including large natural gas pipelines up to 20 inches in diameter (Cut Bank to Warm Springs pipeline) and many small pipelines serve the oil fields around Conrad, Cut Bank, and Shelby. Many small (4- to 6-inch-diameter) lines from the oil fields near Cut Bank converge at "tank hill" where crude oil is collected for subsequent delivery to refinery facilities such as Montana Refining in Great Falls. Most of these lines run north-south on the western edge of the project study area with Encana's 16-inch pipeline the one east-west facility (MATL 2006b).

Aircraft Facilities

Small unmanned airports are located near the towns of Conrad, Shelby, and Cut Bank. Private airstrips are located throughout the study area that serve owners and aerial applicators that serve the agricultural producers.

Other Utilities

When MATL identified its proposed Project alignment in the MFSA application, all pipelines and transmission lines were located so as to avoid placing structures on them. Telephone companies do not have detailed comprehensive databases or maps of buried telephone lines that can be accessed for this application process. MATL would finalize siting with owners of these facilities.

Future Land Use

During scoping, several landowners provided information of planned uses within the analysis area. These include:

- Wind farms
- Additional shooting ranges and a first responder training center at the Great Falls Shooting Sports Complex
- Future conversion of some lands enrolled in the CRP to cropland.

No specific time lines were provided for these activities.

3.1.3 Environmental Impacts

This section describes potential impacts to land uses from the No Action and action alternatives.

3.1.3.1 Alternative 1 — No Action

Under the No Action alternative, the transmission line would not be constructed. There would be no additional impacts on land uses, including farming, GPS, irrigation, crop dusting, production costs, livestock control, or other activities, from transmission lines. Land uses in the area would remain similar to what they are now. Some wind farms that subscribed to the MATL facilities during the transmission open season may not be built.

No impacts would occur to transportation and utilities if the No Action alternative were selected. Current levels of infrastructure use would be maintained.

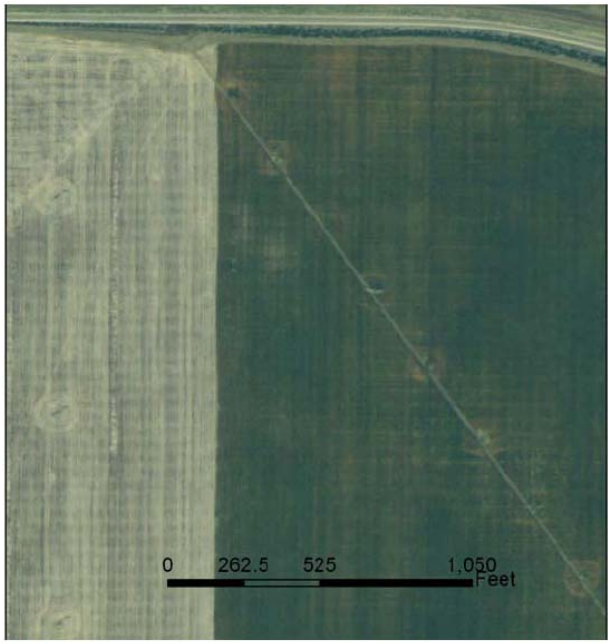
3.1.3.2 Alternatives 2, 3, and 4 — Action Alternatives

Interference with Farming

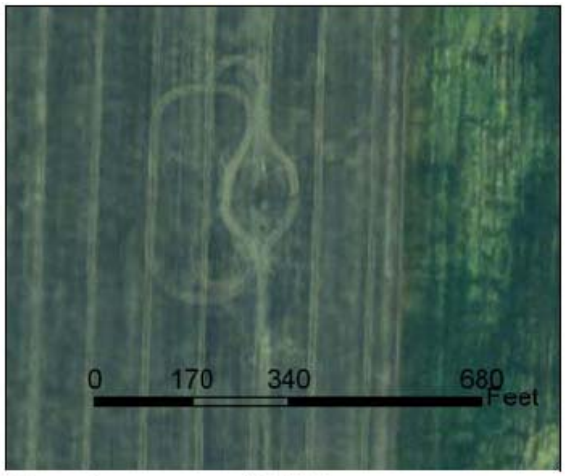
Considerable concern has been expressed by farmers whose land would be crossed by the transmission line. They have identified concerns related to a loss of production, more effort required to farm around transmission line structures, acreage that cannot be farmed due to the structures and access roads, and the introduction of weeds. **Appendix H** contains land uses by milepost for each alternative.

Mechanical irrigation, automated farming methods, farming equipment with large spans (up to 144 feet) for fertilizer, pesticide, and herbicide application, cultivation, harvesting, and crop dusting would all be affected by support structures. These effects could be substantial for an individual operator. Farming equipment continues to become larger and more automated while crops become more "high tech" requiring more precise application and timing. Farmers run the risk of costly damage to their equipment if it strikes a structure. Depending on the location, farming method, and type of structure, acreages would be taken out of production around the base of support structures, and the support structures would be in the way of all equipment (see aerial/orthophotographs below). MATL would compensate farmers for increased production costs and is in the process of revising a method for calculating production costs. This revised method is not yet available for review.

Structures located near the edge of a field may prevent equipment from reaching the edge of the field (see photographs below).



H-Frame on edge of field then diagonal crossing

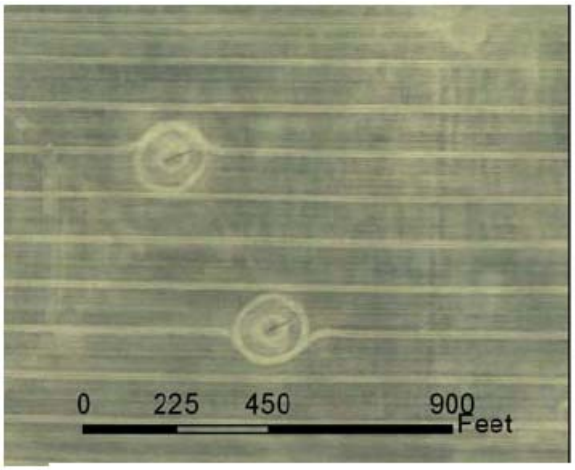


Farming around H-frame

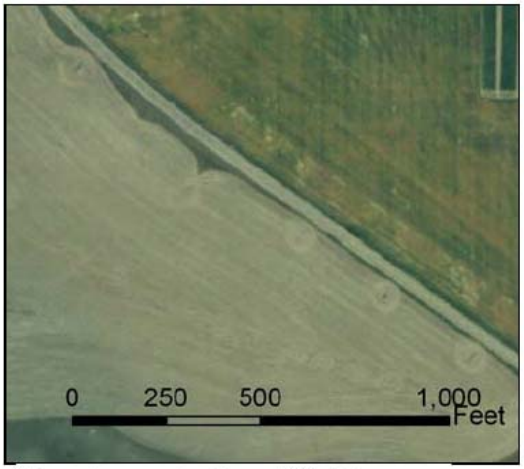
When crossing a cultivated field is necessary, in some cases, effects can be minimized by placement of H-frame structures in a north-south orientation, where the poles are parallel to the rows, avoidance of diagonal field crossings, use of monopole structures in the place of H-frames, and placing structures on the edges of fields.

The worst case scenario for loss of production area is siting H-frame structures diagonally or perpendicularly to rows and structures set close enough to the edge of a field so that farm equipment cannot fit between the structure and the edge of the field (see photograph).

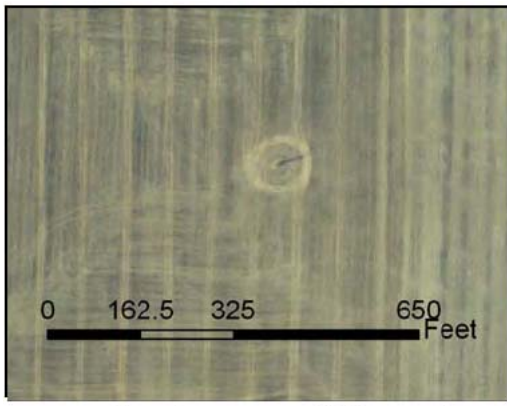
Production costs would increase as farmers have to divert their equipment around structures, make additional passes, take additional time to maneuver equipment, skip areas, or retreat areas. The efficiency of some large, GPS-guided equipment would be adversely affected in fields with diagonal crossing.



Farming around H-frame



Structures at edge of field



Farming around Monopole



Monopole along road adjacent to fields

In conducting the analysis summarized in **Table 3.1-3**, the proposed and alternative alignments were overlaid onto the 2005 orthophotographs (Montana NRIS 2006a) and photographic interpretation was used to document the land use on the alignments. **Appendix H** provides a milepost by milepost interpretation of land uses along each alignment, organized into eight land use types: (1) irrigated cropland, (2) non-irrigated cropland, (3) rangeland, (4) road and rights of way, (5) residential, (6) forest, (7) riparian, and (8) water. **Table 3.1-3** shows the miles of crossings parallel, perpendicular, and diagonal to irrigated, non-irrigated, and range fields along the alternative alignments.

Based on the miles of transmission line that would cross irrigated and non-irrigated cropland at a diagonal, the Alternative 2 alignment would interfere less with farming (52.9 miles of diagonal crossing) than the Alternative 3 alignment (70.4 miles of diagonal crossing). One percent of Alternative 2 and 5.6 percent of Alternative 3 cross irrigated cropland. Twenty-six percent of the Alternative 2 alignment crosses rangeland, compared to 18 percent of the Alternative 3 alignment.

Alternative 4 was developed by DEQ, in part, to reduce the impacts on farming from the proposed transmission line. Overall, Alternative 4 has fewer miles of the alignment crossing non-irrigated cropland at a diagonal (27.0 miles versus 52.8 miles in Alternative 2 and 63.6 miles in Alternative 3). Alternative 4 has the same number of miles of irrigated cropland crossed at a diagonal as Alternative 2 (0.1 mile). Alternative 3 has 6.8 miles.

In the development of the alternatives, several agency-proposed local realignment segments were identified to reduce the number of miles of farmland crossed diagonally, to reduce the total number of miles of farmland crossed, and to reduce the acres removed from farm production by structures. These segments and the quantitative effects on these factors are displayed in **Appendix A**.

TABLE 3.1-3
TYPES OF LAND USE CROSSED BY ALTERNATIVES 2, 3, AND 4 (MILES)

	Alternative 2				Alternative 3				Alternative 4			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Irrigated cropland	1.4	0	0.1	1.5	0	0	6.8	6.8	1.2	0.5	0.1	1.8
Non-irrigated cropland	34.5	3.9	52.8	91.2	27.3	0	63.6	90.9	47.8	11.3	27.0	86.1
Rangeland	6.3	1.8	25.5	33.6	5.2	0.2	16.2	21.6	8.9	5.2	35.2	49.3
Road/Right of Way	0.2	0.9	0.2	1.3	0.1	0	0.2	0.3	0.2	0.2	0.2	0.6
Residential	0	0	0	0	0	0	0.1	0.1	0	0	0	0
Forest	0	0	0	0	0	0	0.1	0.1	0	0	0.1	0.1
Riparian	0.6	0	1.3	1.9	0.1	0	1.2	1.3	0.8	0.1	0.6	1.5
Water	0	0	0	0	0	0	0.1	0.1	0	0	0	0
Total Miles	43.0	6.6	79.9	129.9	32.7	0.2	88.3	121.6	58.9	17.3	63.2	139.6

Notes:

[a] parallel to north and south (+5° due north or south)

[b] perpendicular to north and south (+5° due north or south)

[c] diagonal to north and south

Sources: Orthophotographs 2005 (Montana NRIS 2006a); NRIS 2000; MATL 2006b; field verification; photographic interpretation (see **Appendix H**).

Land Removed from Production

Table 3.1-4 compares how many miles of transmission line cross CRP land or cropland under each alternative.

TABLE 3.1-4
ACRES OF PRODUCTION IN CRP OR CROPLAND AFFECTED BY H-FRAME OR MONOPOLE STRUCTURES IN ALTERNATIVES 2, 3, AND 4[a]

Segment	Alternative 2	Alternative 3	Alternative 4
Total Miles	129.9	121.6	139.6
Miles of Monopole Crossing CRP or Cropland	0	0	87.9
Number of Monopole Structures[b]	0	0	588 (947)[d]
Acres CRP or Cropland Removed from Production by Monopole	6	6.3	3.7 (1.4)
Miles of H-Frame Crossing CRP or Cropland	92.7	97.7	0
Number of H-frame Structures on CRP or Cropland[c]	742	782	0
Acres CRP or Cropland Removed from Production by H-frame[b]	6.53	6.88	0
Total Acres of Cropland and CRP Removed from Production[c]	**12.53**	**13.18**	**3.7 (1.4)**

Notes:

[a] MATL has provided a range of estimated disturbance for various structures and construction details as plans for the transmission line have progressed (MATL 2006b). Analysis was based on conservative estimates of area disturbed by the transmission line construction and structures.

[b] Monopoles would be set on average 790 feet apart (6.6 structures per miles for long spans), and 490 feet apart (11.5 structures per mile) for short spans.

[c] H-frames would be set on average 600 feet apart (8 structures per mile).

[d] Numbers in parentheses represent short span monopole disturbance.

Sources: Orthophotographs 2005 (Montana NRIS 2006a), NRIS 2000, MATL 2006b; field verification; photographic interpretation (see **Appendix H**)

For the purposes of this analysis, the area removed from cropland production or CRP was assumed to be 5 feet from the structure in any direction. Actual losses could be greater, for example, if a structure is located so close to the edge of a field that equipment could not maneuver between the structure and the edge of the field. Likewise, if structures are located at the edge of a field and parallel to the cropping pattern, actual losses could be minimal. A double-pole "H" frame support, the base area (1.5 feet by 23.5 feet) with 5 feet added to all sides would remove 0.0088 acre (385.25 square feet) from production per structure, whereas monopole supports (1.75 foot pole radius plus 5 feet) would remove 0.0027 acre (143.14 square feet) per structure. Based on this assumption, the 97.7 total miles of transmission line that cross cropland under Alternative 2 would result in approximately 742 H-frame structures, amounting to 6.53 acres removed from production. Alternative 3, with 97.2 total miles of transmission line that would cross cropland, would result in approximately 782 H-frame structures, amounting to 6.88 acres removed from production.

Alternative 4 would require the use of monopole structures in all areas where the transmission line would cross CRP land or cropland, 87.9 miles. Monopole structures require less of a footprint for each structure. Using long-span monopoles in Alternative 4 would result in the use of roughly 588 monopole structures and about 3.7 acres of CRP or cropland removed from production. If short-span monopole structures are used in Alternative 4, about 947 structures would be needed, and they would remove about 1.4 acres from production. Long-span monopoles would remove more acreage from production because of their 6.5-foot-wide concrete foundations. However, there would be far fewer of them to farm around.

During construction and line maintenance, short-term disruption of farming activities along the alignment could occur. Locating structures and access roads in previously disturbed areas, or in areas where agricultural practices have already been modified would minimize long-term impacts along the alignments. Environmental protection measures listed in Chapter 2 would be implemented to reduce potential impacts on land use due to erosion, soil compaction, and noxious weeds.

Interference with Crop Dusters

Experienced crop duster pilots are capable of avoiding conductors and structures by flying over, under, or around them, although additional passes may be required. Nationwide in 2005, there were 90 agricultural aircraft accidents investigated by the National Transportation Safety Board (2006). Of those 90 accidents, 14 included a power line, guy wire, or static wire as a contributing factor (two were fatal), five involved helicopters and the remainder involved airplanes. One was a helicopter that started to crash and hit a power line on the way down. None was in the Project area nor in Montana.

Alternatives 2 and 3 are similar in the number of miles of transmission line that cross agricultural lands (92.7 and 97.7 miles, respectively). Alternative 4 would cross the least amount of CRP and cropland (87.9 miles). Potential impacts would be mitigated as crop dusters would be informed of the transmission line, and maps would be provided prior to and upon completion of the MATL line.

Interference with GPS Guided Farming Equipment

Under Alternatives 2, 3, and 4, potential interference could occur to certain types of GPS systems installed in farm equipment. MATL proposes the following environmental protection measures to address problems with GPS interference:

- MATL would support upgrades to improve the GPS system's resistance to interference. Specifically, physically shielding the GPS antennae from electromagnetic interference, where practicable, would alleviate interference.

Another potential solution is to upgrade the unit to be compatible with the Wide Area Augmentation System (WAAS). WAAS provides a more extensive coverage area and is less susceptible to signal interference. WAAS augments GPS with additional signals for increasing the reliability, integrity, accuracy, and availability of GPS.

WAAS has an accuracy specification that results in a horizontal accuracy of better than 5 meters. This accuracy would be helpful for GPS guided equipment.

Livestock Control and Gates

Issues related to controlling livestock and gate closure were raised during scoping. In response, all action alternatives include environmental protection measures to ensure gates are installed, closed, and maintained as needed to control livestock and public access in coordination with affected landowners. Although not 100 percent effective, these measures would reduce problems caused by unauthorized access or gates being left open.

Conservation Easements and Special Management Areas

Linear miles of lands under federal/state special management and those lands currently under federal or state conservation easements (wetland easements, CRP, and FWP easements) are summarized in **Table 3.1-5** for each alignment. Alternative 4 would eliminate crossing the Great Falls Shooting Sports Complex.

TABLE 3.1-5
MILES OF FEDERAL/STATE SPECIAL MANAGEMENT AREAS AND CONSERVATION EASEMENTS CROSSED

	Alternative 2	Alternative 3	Alternative 4
State Land (FWP) – Great Falls Shooting Sports Complex	0.73	0.51	0.12
Montana State Trust Land (DNRC)	10.62	5.91	11.03
Conservation Easements	23.61	(USFWS) 3.76 (CRP) 14.33	(USFWS) 1.7 (CRP) 30.77

Residential Developments

Alternatives 2 and 4 each have one developed residential area that is within 100 feet of each of the alignments. Alternative 3 has four. Impacts on residences are primarily noise and visual quality, and are discussed in those sections. As the safety zone for the transmission line is 105 feet wide, it is anticipated that the centerline would be located at least 52.5 feet from residences.

Planned Land Use

Alternatives 2, 3 and 4 cross through Glacier, Pondera, Teton, Toole, and Cascade counties. All of these counties have adopted a comprehensive land use plan. Cascade County is the only county within the Project analysis area with zoning regulations.

According to the November 15, 2006, version of the Cadastral GIS coverage for Cascade County, there do not appear to be any subdivisions planned or existing in the locations of Alternative 2 or 3 alignments. Alternative 4 crosses the planned Kyles Addition subdivision. No residences are under construction or recently completed in this subdivision.

Right-of-way Restrictions

Farming and other activities are permitted on transmission line rights of way provided that they do not interfere with line operation and maintenance or create safety problems for workers or others.

Landowners may be restricted from constructing buildings or conducting other activities within 52.5 feet of the centerline (depending on location and needed safety zone).

Pipelines

Pipelines are discussed in Section 3.3 and Section 3.4, Electric and Magnetic Fields.

Transportation

Highways and Roads
Environmental protection measures would be followed, as described in Chapter 2, that would minimize the impacts on local access roads, and impacts on highways from crossings. Some minor additional use of roads and highways would occur during construction of the transmission line. Effects would be short term.

Traffic Levels
Agriculture dominates all other land uses within the Project area. The principal activity that would increase traffic on primary, secondary, and other improved roads used by local agricultural producers is traffic associated with power line construction. Several issues would need to be addressed during this period.

A critical element would be timing power line construction and maintenance activities to avoid conflicts with farm machinery. According to Sherwin K. Smith, Executive Director of the Teton County Farm Service Agency, the farm schedule is as follows:

- Fall seeding of winter wheat, September to Mid-October
- Spring seeding of spring wheat, Mid-March to May
- Harvest, July to September or later depending on early snows.

When the existing Great Falls to Cut Bank 115-kV line was constructed in the mid-1960s, a large combine had a 20- to 24-foot header, a big drill was 32 feet, and few, if any, 4-wheel drive tractors were even available. Present day equipment has grown substantially (Broesder 2006). Some of the widths are listed below:

- Combine tread width-large unit 13.1 feet standard, up to 15.1 feet with axle extenders.
- Four wheel drive tractor dual wheels up to 18 feet wide; triples up to 22 to 24 feet wide.
- Air drills (both Case IH and New Holland)-57 foot drill when folded for transport is 20 feet 6 inches wide by 17 feet high.

From these data, conflicts with farm machinery on local roads are unavoidable especially during seeding and harvest. Timing and open frequent communication between the landowners and the contractor(s) would help to reduce impacts. Additionally, the use of pilot vehicles during equipment mobilization and delivery of large, long loads on secondary roads would serve to minimize conflict with ongoing farming activities especially during seeding and harvest.

Airports and Private Airstrips

Alternatives 2, 3, and 4 are each close to two airports, Conrad and Horner Field. The Conrad Airport is a public airport with two runways (one paved and one turf) and serves an average of 74 aircraft per week. Alternative 3 is 0.75 mile southwest of the Conrad airport. Alternative 2 is 2 miles to the southwest of the Conrad airport, and Alternative 4 is 3.7 miles to the northeast. Horner Field is a private airstrip (gravel) (Airnav.com 2006). Alternatives 2 and 3 are 1.55 miles to the east of Horner Field. Alternative 4 is 1.8 miles to the southwest. Information is not available describing the use of these facilities.

Adherence to FAA regulations and coordination of construction activities would minimize conflict with the MATL project. However, construction of the power line, whether parallel to the existing 115-kV NorthWestern line or not, would add to the

existing transmission and distribution lines within the project area. Local pilots, those with private airstrips, and aerial spray pilots would be adversely impacted.

Roads and Railroad Crossing and Paralleling

Comments were raised regarding the number of crossings the proposed transmission line would make of roads and railroads.

Support structures adjacent to roads may pose a hazard to motorists, in some cases, if the vehicle leaves the roadway. Because of this, transmission line structures are normally located outside of the road right of way. Additionally, roads are commonly used by aircraft for navigation because they are located on a map and transmission lines parallel to a road could create a hazard for a few aircraft that fly less than 80 to 100 feet above the ground.

Power line construction and maintenance could increase conflicts with train traffic in the project area, especially at uncontrolled crossings. The power line would have to cross a railroad right of way or would run parallel to it at some point along its alignment (MATL 2006b).

The primary impacts to infrastructure would result from power line construction. Follow-up power line maintenance using standard equipment would be an infrequent occurrence and not add greatly to the existing traffic loads on the roadway network.

Direct impacts include increased traffic on major highways and secondary roads, minor delays along these alignments to allow equipment and material to be delivered to specific locations along the alignment, and a traffic stoppage during the conductor stringing phase.

Land Use Mitigations

To minimize adverse environmental impacts to land uses from Alternative 2 and address local land use issues in specific places, DEQ identified several potential mitigation realignments that are described by segments A1, A2, B1, B2, C1, C2, D, and E in **Appendix A.** The realignments that would mitigate land use impacts on a local scale are:

- Segment B2 - Diamond Valley and Teton River Crossing Realignment
- Segment D - Belgian Hill Realignment
- Segment E - South of Cut Bank Realignment

A description of these realignment segments and the agency's preliminary analysis of their environmental impacts are presented in **Appendix A**.

MATL has acknowledged (MATL 2006b) that the maximum cost that MATL can afford, and still meet financial requirements, is approximately $850,000. If monopole structures cost 11.3 percent more than H-frame structures, approximately 25 miles of transmission line could employ long-span monopoles. MATL also acknowledged that long-span monopole design is an appropriate mitigation design to H-frame structures for crossing dry-land croplands. However, the total additional cost must not cause the MATL project to be infeasible.

The use of monopoles would be applied to mitigate diagonal crossing of cropland using a prioritization method. The order of priority would be in the following manner:

1) Highest priority to portions of the certified alignment that cross currently farmed land (not CRP) and that parallel the existing NWE 115-kV transmission line (essentially all portions that parallel NWE's line are on a diagonal)

2) Second highest priority to portions of the certified alignment that cross land currently enrolled in the CRP and that parallel the existing NWE 115-kV transmission line (essentially all portions that parallel NWE's line are on a diagonal),

3) Third highest priority to portions of the certified alignment that cross currently farmed (not CRP) land

4) Fourth highest priority to portions of the certified alignment that cross land currently enrolled in the CRP

Specific locations (identified by mileposts) where DEQ proposes that monopoles could be applied to address local land use issues are outlined in the draft DEQ environmental specifications in **Appendix F.**

3.2 Geology and Soils

Issues of concern associated with geologic resources are: the potential for seismic activity, mass movement, subsidence, and mineral resources. Issues associated with soil resources are soil stability, potential for erosion, compaction, salinity, construction requirements for roads and access, and revegetation.

3.2.1 Analysis Methods

GIS software was used to map the distribution of geologic and soil properties that could be affected by the Proposed Project or alternatives. Geologic information was collected from U.S. Geological Survey (USGS) topographic maps, USGS seismic risk data, geologic maps and data primarily from the Montana Bureau of Mines and Geology (MBMG), and from baseline geology data provided in the MATL application (MATL 2006b). Data for important soil properties, including soil type, soil depth, soil stability, potential for erosion, compaction, salinity, limitations for roads and access, and revegetation, were acquired from the NRCS database (NRCS 2006a), the MATL application (MATL 2006b), and aerial photo interpretation. Geologic and soil resources (slope stability and erosion potential) that could be affected differently by different alternatives were evaluated and compared for each alternative alignment.

Analysis Area

The analysis area for geologic and soil resources is the same as the Project study area. The study area is generally located on relatively flat-lying plains on the eastern slope of the Northern Rocky Mountains (Northern Great Plains physiographic province).

3.2.2 Affected Environment

Geology and soils in the analysis area are described below in terms of characteristics relevant to the issues of concern stated under Section 3.2 above.

Geology

The bedrock geologic units present in the analysis area are primarily Cretaceous shales and sandstones deposited during repeated advances and regressions of the inland sea present from 65 to 135 million years before the present (MATL 2006b). The geologic formations intersected by each alignment are outlined in **Table 3.2-1**. The surface expressions of geologic formations crossed by each alignment extend across the entire analysis area and are nearly flat-lying. At the southern end of the analysis area, the dominant structural feature is the northeast trending Great Falls Tectonic Zone, which thins the Cretaceous shales and sandstones (MBMG 2002a).

TABLE 3.2-1
GEOLOGIC FORMATIONS AT THE SURFACE IN THE ALIGNMENT OF EACH ALTERNATIVE

Geologic Unit or Formation	Miles	Percent
Alternative 2		
Glacial till, late Wisconsinan	62.48	37.5
Two Medicine Formation	51.59	31.0
Kevin Member of Marias River Formation	33.25	20.0
Telegraph Creek Formation	9.77	5.9
Virgelle Formation	3.08	1.8
Alluvium of modern channels and flood plains	1.76	1.1
Alluvium-colluvium	1.61	1.0
Taft Hill Member of Blackleaf Formation	0.92	0.5
Alluvium of alluvial terrace deposits	0.72	0.4
Lake deposits	0.71	0.4
Bootlegger Member of Blackleaf Formation	0.54	0.3
Ferdig Member of Marias River Formation	0.09	0.1
Vaughn Member of Blackleaf Formation	0.09	0.1
Landslide deposit	0.01	0.0
Alternative 3		
Two Medicine Formation	44.29	35.8
Glacial till	38.30	31.1
Kevin Member of Marias River Formation	22.85	18.5
Telegraph Creek Formation	9.00	7.3
Virgelle Formation	3.30	2.7
Alluvium of modern channels and flood plains	2.58	2.1
Alluvium-colluvium	1.89	1.5
Taft Hill Member of Blackleaf Formation	0.42	0.3
Bootlegger Member of Blackleaf Formation	0.25	0.2
Lake deposits	0.21	0.2
Ferdig Member of Marias River Formation	0.19	0.2
Alluvium of alluvial terrace deposits	0.16	0.1
Landslide deposit	0.09	0.1
Vaughn Member of Blackleaf Formation	0.05	0.0
Alternative 4		
Two Medicine Formation	44.58	31.9
Kevin Member of Marias River Formation	29.98	21.5
Glacial till, late Wisconsinan	18.84	13.5
Glacial lake deposit	8.89	6.4
Telegraph Creek Formation	7.51	5.4
Bootlegger Member of Blackleaf Formation	6.88	4.9
Alluvium-colluvium	4.34	3.1
Virgelle Formation	3.29	2.4
Alluvium of modern channels and flood plains	3.06	2.2
Vaughn Member of Blackleaf Formation	2.72	2.0
Glacial till, older	2.66	1.9
Floweree Member of Marias River Formation	1.84	1.3

TABLE 3.2-1 (Continued) GEOLOGIC FORMATIONS AT THE SURFACE IN THE ALIGNMENT OF EACH ALTERNATIVE		
Geologic Unit or Formation	**Miles**	**Percent**
Alternative 4 (continued)		
Taft Hill Member of Blackleaf Formation	1.42	1.0
Alluvium of alluvial terrace deposits	1.38	1.0
Alluvium of braided plains	1.20	0.9
Ferdig Member of Marias River Formation	1.06	0.8

The north end of the analysis area is on the west flank of the Kevin-Sunburst dome, which produces a slight westerly dip in the Cretaceous sedimentary rock of approximately 100 feet per mile (MBMG 2002b).

The sedimentary formations that underlie the analysis area include the Kootenai Formation, Blackleaf Formation, Marias River Formation, Telegraph Creek Formation, Virgelle Formation, Eagle Formation, and the Two Medicine Formation. The Marias River, Telegraph Creek, and Two Medicine formations underlie most of the analysis area. The Marias River Formation is the uppermost member and is comprised primarily of dark-gray shale with some limestone and sandstone beds; the Telegraph Creek Formation is a yellowish-gray, fine-grained sandstone with interbedded gray shale; and the Two Medicine Formation is comprised of a non-marine mudstone with thin beds of fine-grained sandstone (MBMG 2002c).

Overlying these sedimentary bedrock formations throughout most of the analysis area are deposits of glacial till, glacial lake sediments, and alluvial materials. The glacial till is composed of grayish-brown unsorted clay-size to boulder-size sediments and rock fragments (MBMG 2002c and 2002d). The thickness of the till typically ranges from 1 to 15 feet, with occasional thicknesses greater than 200 feet (MBMG 2002b and 2002c). Alluvial deposits are present in the analysis area along river and stream channels and are typically poorly sorted to well sorted sand and gravel materials that are locally derived or reworked glacial till (MBMG 2002a).

Potential for Seismic Activity

The potential for seismic activity within the analysis area is low. There are no mapped active faults in the analysis area (USGS 2006b). The nearest faults are the South Fork Flathead Fault and two small unnamed faults near the Sweetgrass Hills (MATL 2006b). The USGS has created models to estimate the peak acceleration for any area within the country. Peak acceleration is used to assess the potential impact of earthquakes on structures. The peak acceleration for the analysis area (with a 10 percent probability of

exceedance within the next 50 years) is 4.5 to 6.5 percent of the force of gravity; relatively low compared to elsewhere in the U.S. (USGS 2006b).

Mass Movement

Mass movement is the relatively rapid movement of geologic materials (commonly known as a slump or slide). The potential for mass movement of soil or rock primarily depends on topography and the dip of the bedding planes of the bedrock. The general topography and bedding plane dip slopes of the analysis area are flat with small potential for mass movement. The potential for mass movement is also based on the overall shear strength of the geologic materials. Glacial till is unconsolidated and thus prone to mass movement if located on a slope of 15 percent or greater. Shale is also prone to mass movement on slopes. Areas within the analysis area having the greatest potential for mass movement are found where glacial till materials are positioned on terraces and the incised banks of the Teton River, Marias River, Dry Fork Marias, and Buckley Coulee. **Figure 3.2-1** shows areas in the study area with surficial expressions of shale and glacial till on slopes greater than 15 percent. Examination of aerial photographs of the Teton River crossing indicates there are numerous slumps on the steep slopes.

Subsidence

Subsidence can occur when voids are created in subsurface materials (sinkholes in limestone or subsurface mining) causing collapse of overlying material, or when the withdrawal of groundwater or petroleum causes geologic material to settle. The potential for the creation of voids and subsequent sinkholes within the geologic materials in the analysis area is low to nil due to the absence of limestone. No active or abandoned subsurface mines are located within the alignments of the action alternatives. Subsidence related to the withdrawal of groundwater or petroleum is also unlikely within the analysis area since petroleum is extracted at low to moderate rates and from consolidated bedrock formations. Groundwater pumping in the analysis area does not occur at rates and volumes large enough to cause subsidence.

Mineral Resources

Mineral resources include oil, gas, coal, sand and gravel, and precious metals. Petroleum deposits are found within the Cretaceous rock formations that are mapped from south of Cut Bank to the Canadian border. There are numerous producing and abandoned oil wells present across this portion of the analysis area. South of the Marias River to Great Falls, there are fewer oil wells and fewer known oil and gas deposits. The Cretaceous rock formations also contain deposits of coal.

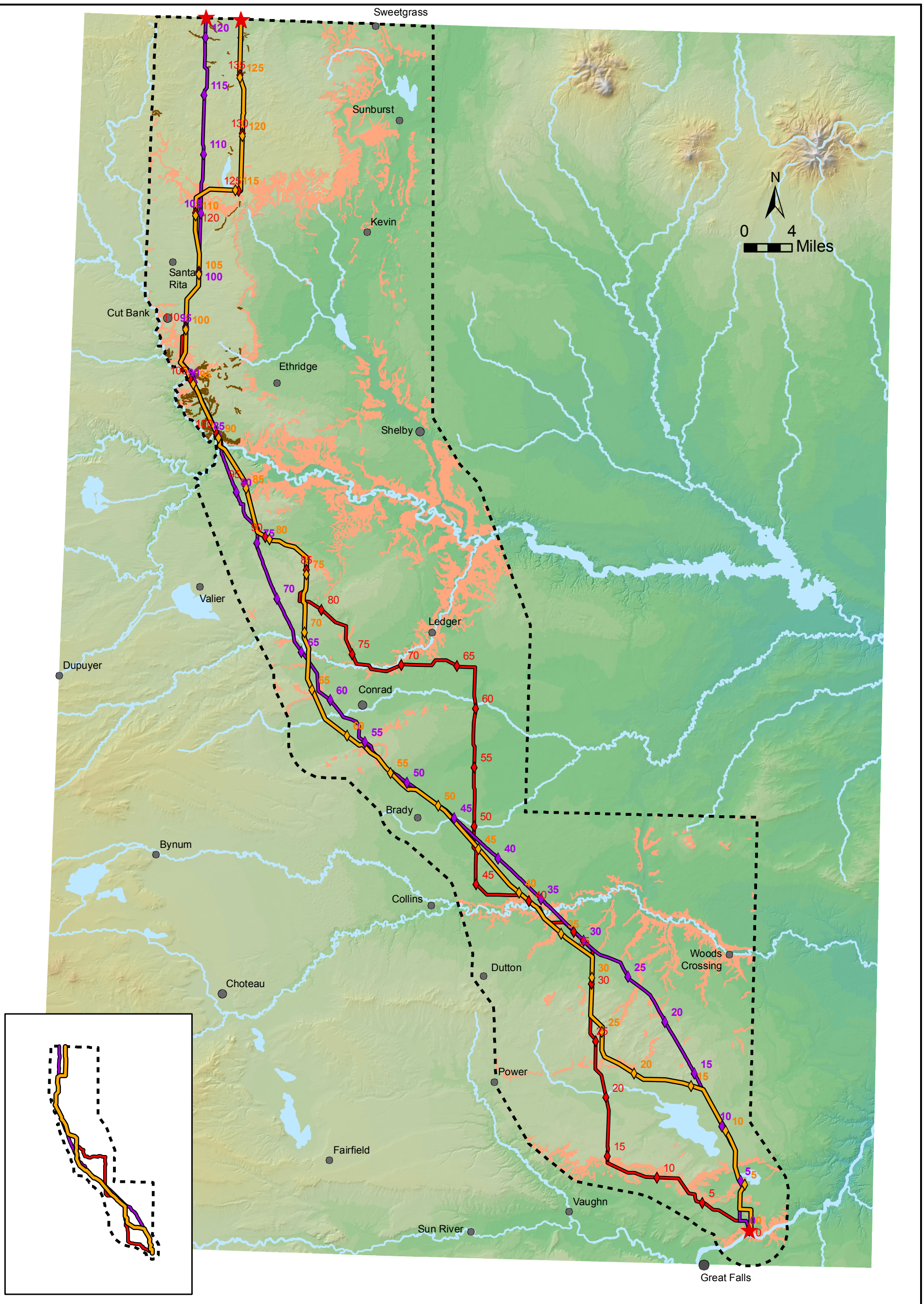


FIGURE 3.2-1
SOIL EROSION POTENTIAL

LEGEND

- GLACIAL TILL WITH HIGH MASS WASTING POTENTIAL ON SLOPES > 20%
- SOILS WITH HIGH MASS WASTING POTENTIAL ON SLOPES > 20%
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_2-1_MATL_erosian_potential_012007.mxd

Soils

The kinds of soils that have developed in the analysis area are determined by five major factors: (1) climate; (2) living organisms; (3) parent material; (4) topography; and (5) time. Three of the five factors have had a major influence on soil development in the analysis area; they are climate, parent material, and topography. The colder, semi-arid climate has caused soil profiles to be shallow compared to soils from warmer and wetter locales. As discussed in the Geology section above, soils that develop on shale and sandstone bedrock have considerably different parent materials than soils that develop from glacial till and glacial outwash sediments. In addition, topography has local influences due to the erosional downcutting and steeper slopes associated with the major Marias and Teton stream drainages and their associated tributaries.

Soils that form on relatively flat deposits of glacial till are mostly well-drained and fine-textured soils. These soils are suitable for agriculture and rangeland and are rated fair to good for growing grasses, low to moderate for frost action, and high for corrosion of steel (NRCS 2006a). Most of the soils within the MATL analysis area that have developed from the glacial till deposits are classified in the Mollisol soil order (NRCS 2006a). Other soil types, with lesser areal coverage than Mollisol soils, are classified in the Entisol, Inceptisol, and Vertisol soil orders. Only very small areal amounts of Alfisols and Aridisols soils are found within the analysis area.

Soils in the Mollisol soil order characteristically have a dark-colored, relatively thick, and organically rich surface horizon that developed under thousands of years of grassland vegetation (Soil Science Society of America [SSSA] 1997). Within the analysis area, the Mollisol soils typically have a fine- to fine-loamy-grained texture, are well drained, and have formed on stream terraces, alluvial fans, and glacial till plains with slopes less than 10 percent.

Soils in the Entisol soil order are younger and weakly developed soils, compared to Mollisols, with little, if any, profile development (SSSA 1997). Entisol soils are found on very recent geomorphic surfaces (Brady 1990). Within the analysis area, Entisol soils typically are well-drained soils with a fine-loamy to loamy-grained texture. Entisol soils are mapped on flood plains, glacial till plains, and hills with slopes up to 60 percent within the MATL analysis area.

Soils in the Inceptisol soil order are also weakly developed soils with few diagnostic features but are considered to be more developed than the Entisol soils. These soils typically have a subsurface mineral horizon with some weatherable minerals that have been slightly altered or leached (SSSA 1997). Within the analysis area, the Inceptisol soils typically have a fine- to fine-loamy-grained soil texture. These soils are well drained and can produce good agricultural crops under proper management (Brady

1990). In the MATL analysis area, Inceptisol soils have formed on alluvial fans, glacial till plains, and hills with slopes less than 45 percent (NRCS 2006a).

Soils in the Vertisol soil order are mineral soils with greater than 30 percent clay. Within the analysis area, the Vertisol soils have formed from finer-grained glacial sediments that were deposited by glacial outwash. These soils can be well drained under proper management, but will form deep wide cracks when dry (SSSA 1997). Vertisol soils in the analysis area typically have a very fine- to fine-grained texture and are found on alluvial fans, glacial till plains, and lake plains with slopes less than 10 percent.

Soil Stability and Erodibility

The stability and potential for erosion of these soils are primarily dependent on the particle size, slope, and potential for mass movement. Fine-grained soils are more susceptible to wind and water erosion than coarser soils, and soils on steep slopes are more prone to erosion than soils located on relatively flat terrain. Steep slopes are also required for the mass movement of soils.

The majority of the MATL analysis area contains relatively flat terrain. Exceptions are the steep slopes associated with the bluffs north of Great Falls and stream banks along the Teton River, Dry Fork of the Marias River, and Marias River. Mass movement of soils is occurring within the analysis area along the Teton River. Areas of highly erodible or unstable soils (soils on slopes greater than 15 percent) within alternative alignments are shown in **Figure 3.2-1**.

Compaction

The degree to which soils may become compacted from farming or construction operations is primarily dependent on the surface soil grain size, the mineral composition of the soil, and the moisture content. Soils with high silt and clay content are more susceptible to becoming compacted than sandy soils under the same moisture conditions. Moist soils are more prone to compaction for all soil texture and mineral types. Dry soils are less susceptible to compaction than wet soils, but dry soils produce more dust that is eroded by wind. Many of the soils within the MATL analysis area have fine-grained surface soil textures and will be prone to compaction by construction equipment, if adequate soil moisture is present. This may be especially true with cement trucks delivering concrete for long-span monopole foundations.

Salinity

Salinity is a measure of the salt content of the soil. Highly saline soils inhibit the growth of vegetation due to the increased osmotic potential exerted by the salts in the soil solution. Revegetation of disturbed areas with highly saline soils may be problematic. Most of the soils within the analysis area have low to moderate salinity and small areas of saline soils could be avoided. Revegetation success should not be influenced by saline soils in the analysis area with the exception of saline seep areas.

Roads and Access

Roads are best constructed on soils with coarse-grained surface soil textures, compared to soils with surface soils with fine-grained textures. Many soils in the MATL analysis area have fine-grained surface soil textures and may not be suitable for building temporary or permanent roads.

Revegetation

The soils within the MATL analysis area are mostly rated fair to good for growing grasses. The reestablishment of range or cropland vegetation on the disturbed lands should be successful if standard fertilization and seeding methods are implemented.

3.2.3 Environmental Impacts

Potential impacts to geologic and soil resources from the four alternatives are described in this section. The difference among action alternatives depends on the competency of the bedrock, soil type, slope, and disturbance activities that would take place at a given location. Resource characteristics that could be affected differently by each action alternative are slope stability (due to mass movement) and soil stability (due to erosion). Increasing the risk of mass movement could not only result in slope instability, but also compromise the integrity of transmission line support poles. Increasing soil erosion could result in the loss of topsoil, reduced effectiveness of vegetation efforts during reclamation, and increased sedimentation to surface water. Increased soil compaction would also reduce the effectiveness of reclamation efforts in the selected alignment.

Other geologic and soil characteristics (seismicity, subsidence, mineral resources, salinity, road substrate material, and compaction) are similar throughout the analysis area. Impacts to (and from) these resources would be the same for all alternatives and are described below.

3.2.3.1 Alternative 1 — No Action

The No Action alternative would not affect geology or soil resources beyond current impacts from farming, road building, and construction activities.

3.2.3.2 Alternative 2 – Proposed Project

Areas within the Alternative 2 alignment that are prone to impacts, including slope stability (due to mass movement in areas underlain by glacial till and shale on a slope), soil stability (due to erosion on slopes), and soil compaction, are shown on **Figure 3.2-1**. Overall, with successful implementation of the MATL proposed environmental protection measures and the required DEQ environmental specifications, impacts to soils and geology under Alternative 2 would be minor and primarily of short duration.

Mass Movement

Mass movement is likely to occur on incised banks and steep slopes primarily where the alternative alignment crosses streams and rivers. Mass movement could result in the shifting or collapse of transmission line poles and would likely contribute to the sediment load of nearby surface water. Mass movement occurs naturally and can be exacerbated by ground disturbance and heavy equipment associated with the construction of the transmission line. The risk for mass movement is greatest in the Black Horse Lake area (milepost 5), the north side of the Teton River (milepost 35 to 40), and at the Marias River crossing (milepost 88 to 91). MATL would implement erosion and sediment control practices as provided in its application (MATL 2006b) and required by the State of Montana (**Appendix F**). Additional mitigation measures may include precision mapping of unstable soils along these segments of the Alternative 2 alignment and providing an alignment wider than 500 feet to allow flexibility in pole placement, so future landslides do not adversely affect the proposed line.

Soil Stability and Erodibility

Areas prone to soil stability and erosion are shown on **Figure 3.2-1**. Soil stability and erodibility are primarily dependent on soil texture, slope, and degree of disturbance. Soils along much of Alternative 2 are fine-grained and are prone to erosion when the vegetative cover is disturbed, which would be primarily during construction activities. The greatest potential for soil erosion for Alternative 2 would be from the construction of access roads along the banks of the Teton and Marias rivers. Implementing soil and erosion control measures would help minimize the formation of gullies.

Compaction

Soils may become compacted under all action alternatives, especially during the construction phase. MATL has committed to stripping topsoil, by sidecast methods, for new access roads and replacing the sidecast soils following construction. MATL has also developed specific mitigation measures for soils, including providing an erosion control plan and implementing best management practices (water bars, drainage contours, straw bales, filter cloth, or similar) for areas with susceptible soils to minimize impacts to soils.

3.2.3.3 Alternative 3 – MATL B

Alternative 3 is 8.3 miles shorter than the Alternative 2 (121.6 miles vs. 129.9 miles) due to more diagonal segments along the entire alignment. The potentials for mass movement and unstable soils are similar to those under Alternative 2, but the lengths of the alignment with the potential for mass movement and the occurrence of unstable soils are less under Alternative 3.

Mass Movement

Mass movement impacts and mitigations would be similar to Alternative 2. The risk for mass movement is greatest within the historic channel of the Teton River (milepost 32 to 34) and at the Marias River crossing (milepost 84 to 85). MATL would implement erosion and sediment control practices as provided in its application (MATL 2006b) and required by the State of Montana draft Environmental Specifications (**Appendix F**).

Soil Stability and Erodibility

Areas prone to soil stability and erosion problems are shown on **Figure 3.2-1**. About 12 miles of Alternative 3 are located on unstable soils on slopes greater than 15 percent. Soil stability and erodibility are primarily dependent on soil texture, slope, and degree of disturbance. Soils along much of Alternative 3 are fine-grained and are prone to erosion when the vegetative cover is disturbed, which would be primarily during construction activities. The greatest potential for soil erosion for Alternative 3 would be from the construction of access roads along the banks of the Teton and Marias rivers. Implementing soil and erosion control measures would help minimize the formation of gullies.

3.2.3.4 Alternative 4 – Agency Alternative

Alternative 4 is 139.6 miles in length, which is about 9.7 miles longer than the proposed Project (129.9 miles). This alternative is composed of 60.9 miles of the Alternative 2

alignment and 78.7 miles of agency-developed alignments that branch off the Alternative 2 alignment. The 78.7 miles of agency alignments were developed to address identified local scoping issues and concerns. The potentials for mass movement and unstable soils are similar to those under Alternatives 2 and 3, but the lengths of the alignment with the potential for mass movement and the occurrence of unstable soils are greater under Alternative 4 primarily due to the alignment of the alternative along the Dry Fork of the Marias River and Marias River.

Mass Movement

Mass movement impacts and mitigations would be similar to Alternative 2. The risk for mass movement is greatest within the historic channel of the Teton River (milepost 36 to 42), along the Dry Fork of the Marias River (milepost 70 to 82), and at the Marias River crossing (milepost 98.5 to 100.5). MATL would implement erosion and sediment control practices as provided in its application (MATL 2006b) and required by the State of Montana (**Appendix F**).

Soil Stability and Erodibility

Areas prone to soil stability and erosion problems are shown on **Figure 3.2-1**. About 24 miles of Alternative 4 are located on unstable soils on slopes greater than 15 percent. Soil stability and erodibility are primarily dependent on soil texture, slope, and degree of disturbance. Soils along much of Alternative 3 are fine-grained and are prone to erosion when the vegetative cover is disturbed, which would be primarily during construction activities. The greatest potential for soil erosion for Alternative 4 would be from the construction of access roads along the banks of the Teton, Dry Fork of the Marias, and Marias rivers. Implementing soil and erosion control measures would help minimize the formation of gullies.

3.3 Engineering and Hazardous Materials

3.3.1 Analysis Methods

Engineering concerns pertain to transmission line support structures and the impacts of these structures associated with crossing contaminated sites, pipelines, other transmission lines, major highways, streams, and rivers.

Analysis Area

The analysis area for engineering and hazardous materials includes the proposed power line alignments, staging locations, and a 1-mile buffer zone on each side of the proposed alignments.

Information Sources

Information for the analysis of engineering resources was obtained from the MATL MFSA application (MATL 2006b). Information sources for hazardous materials in the affected environment included the online U.S. Environmental Protection Agency (EPA) Region 8 Superfund Site Locator (EPA 2006c), the online Montana NRIS (2006b), and field observation of oil and gas extraction operations within the analysis area.

Methods used to analyze the potential impacts of alternatives 2, 3, and 4 included evaluation of proposed alignments with respect to mapped hazardous materials in the analysis area and evaluation of proposed activities with respect to potential use and generation of hazardous materials.

3.3.2 Affected Environment

Proposed Transmission Line Design

The transmission line would be designed, constructed, operated, and maintained in accordance with the NESC, U.S. Department of Labor OSHA Standards, and other guidance as appropriate for safety and protection of human life and the environment.

Federal Superfund Sites

A review of the online EPA Region 8 Superfund Site Locator indicates that there are no federal Superfund (Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA) sites located within the Project area. The closest federal Superfund sites to the project area are the Barker Hughesville historic mining district and the Carpenter-Snow Creek mining district, both of which are on the federal

National Priorities List. Both of these sites are located southeast of Great Falls. Barker Hughesville mining district is 36.2 miles to the southeast of Great Falls. Carpenter-Snow Creek mining district is 46 miles to the southeast of Great Falls.

State Superfund Sites

There are four state Superfund sites located within the Project area. Conrad Refining Company, 1 mile south of Conrad, is an inactive, 9-acre oil refinery, which operated from 1929 to 1941. Refinery operators disposed of sludge in on-site pits. Midwest Refining Company, in Conrad near Front Street and Second Street South, is an inactive, 0.9-acre former oil refinery which was in operation around 1929. Little historic or other information is available about the facility. Union Oil-Cut Bank Refinery (also known as the Flying J Refinery), 3 miles southeast of Cut Bank, is an inactive crude oil refinery and natural gas processing plant which operated from 1937 to 1983. The Carter Oil Company Cut Bank Refinery is located 1 mile west of Cut Bank on the Blackfeet Indian Reservation. The Conrad Refining Company site is within 1,000 feet of the Alternative 2 alignment. The other sites are not affected by any transmission line alignment.

Oil and Gas Operations and Pipelines

Numerous oil and gas fields are located within the northern portion of the analysis area. All action alternatives would traverse areas with operating oil and gas extraction wells, well waste pits, oil and gas storage systems, and pipelines. A variety of pipelines between 8 and 20 inches in diameter occur within or traverse the Project study area including gathering system main lines and transmission/trunk lines. These pipelines are used to transport either crude oil or natural gas. Four major pipelines exist in a broad corridor between the Canadian border and Cut Bank; six major pipelines exist between Cut Bank and Great Falls. With the exception of an Encana Corporation 16-inch natural gas pipeline, which runs from east to west, primary routes for the main transmission/trunk lines generally run south to north and are located in the western portion of the Project study area.

Crude oil pipelines in the analysis area were located based on information provided by several sources including Front Range Pipeline Company, USGS topographic maps, agency field notes from the fall of 2006, review of 2005 aerial photographs, NRIS mapping, and the Montana Board of Oil and Gas Conservation. Crude oil pipeline data contained in the NRIS database (Montana NRIS 2006a), or provided by the above referenced sources include:

- Two Continental crude oil pipelines are located east of Great Falls running northwest approximately parallel to the Proposed Project and alternatives. The pipelines are 12 inches and 18 inches in diameter. These pipelines run from east of Great Falls through

Portage, Cascade County, to Cut Bank and beyond. These pipelines are crossed in the vicinity of Cut Bank by alternatives 2, 3, and 4.

- Two Front Range Pipeline Company 10-inch mainlines, one 6-inch mainline, and one 16-inch mainline start at the U.S.-Canada border and end at the Santa Rita pump station.
- One Front Range Pipeline Company 16-inch mainline that starts at Santa Rita station and ends in Laurel, Montana.
- One Front Range Pipeline Company 8-inch mainline starts at the Santa Rita station and ends at the Cut Bank station.
- One Front Range Pipeline Company 10-inch pipeline that starts at the U.S.-Canada border and ends at the Santa Rita pump station.

Additional smaller natural gas pipelines are likely located within the analysis area and may be crossed by alignments associated with alternatives 2, 3, and 4.

3.3.3 Environmental Impacts

3.3.3.1 Alternative 1 — No Action

The MATL transmission line would not be built. There would be no engineering or hazardous materials concerns if the No Action alternative were selected.

3.3.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Proposed Construction

The 500-foot-wide Alternative 2 alignment would come within 100 feet of an existing pipeline for a total length of 7.0 miles. The Alternative 3 alignment would come within 100 feet of an existing pipeline for a total of 23.7 miles, and the Alternative 4 alignment would come within 100 feet of an existing pipeline for a total of 5.7 miles. No adverse impacts from proximity to pipelines are expected. However, the risk for potential pipeline damage increases with an increase in length of alignment proximal to a pipeline. No short-term adverse impacts would be associated with transmission line construction tasks.

Proposed Operations Maintenance

No long-term adverse impacts would be associated with operation and maintenance of the transmission line. Wood H-frame structures generally require more maintenance than steel structures and have a shorter useful life. Wood H-frame structures should meet the operational life of the proposed transmission line.

Impacts to buried utilities such as pipelines are considered to be of little consequence; however, should the power line be located near and parallel to an existing pipeline, a separation of 0.5 mile would be recommended to minimize electric field effects. Additional discussion on the safety of co-locating a transmission line with a pipeline is provided in Section 3.4.3.

Federal and State Superfund Sites

No federal or state Superfund sites would be affected by any of the proposed alignments.

3.4 Electric and Magnetic Fields

This section describes background information regarding impacts from electric and magnetic fields (EMF) and corona effects, and evaluates the action alternatives for impacts on human health and safety.

Both current and voltage are required to transmit electrical energy over a transmission line. The current, a flow of electrical charge, measured in amperes (A), creates a magnetic field. The magnetic field is expressed in units of milligauss (mG). The voltage, the force or pressure that causes the current to flow, measured in units of volts (V) or thousand volts (kV), creates an electric field. Both fields occur together whenever electricity flows, hence the general practice of considering both as EMF exposure. Any device connected to an electrical outlet, even if the device is not turned on and current is not flowing, will have an associated electric field that is proportional to the voltage of the source to which it is connected. Magnetic fields occur only when current is flowing. Common materials such as wood and metal usually do not shield against magnetic fields.

In recent years the possibility of deleterious health effects from EMF exposure has increased public concern about living near high-voltage lines. The available data have not revealed any conclusive evidence that EMF exposure from power lines poses a hazard to animal or human health. However, while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard and some studies provide preliminary evidence that a linkage may exist between exposure to magnetic fields and childhood leukemia. In light of the present uncertainty, this section contains a summary of the existing credible scientific evidence relevant to evaluating the potential impacts of EMF.

This section also addresses safety considerations in the immediate vicinity of transmission lines. Additionally, the potential for corona effects on the human environment from transmission lines is discussed. Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors, the wires that carry electricity. Corona effects are of concern for potential audible noise, interference with radio, television, and other electrical devices, such as Global Positioning System (GPS) equipment, production of visible light, and photo chemical reactions.

3.4.1 Analysis Methods

The EMF effects of the transmission lines were calculated for a range of distances from the transmission line. In general, the farther removed a person is from the transmission line, the lower the EMF strength. A number of different scenarios were tested in the

calculations. Because the magnetic field varies with the current carried on the transmission line, magnetic field strength was calculated for the normal anticipated current load of 230 kV per circuit. In the optimized phasing orientation, the phases of the single circuit are offset to minimize the EMF strength. As described in Section 3.4, the focus of EMF health studies and the focus of the following impacts analysis are on magnetic fields, although electric fields are included for completeness.

Since MATL's policy is to minimize EMF exposure levels to the extent practicable, MATL would use the vertical optimized phasing orientation for the single-circuit line. Results from the non-optimized phasing orientation are included for comparison purposes only. The calculations evaluate EMF strength at a range of distances from the centerline of the transmission line, both within and outside the approximate 105 feet safety zone, and for the portion of each span where the conductors are closest to the ground. The magnetic field is expressed in units of mG; the electric field is expressed in units of kV/m.

The potentials for corona effects and effects on safety are also evaluated. The nearest potential receptors to the transmission line based on the proposed and alternative alignment are listed for each alternative, including residences, schools, and commercial establishments.

Analysis Area

Based on the use of the single circuit, H-frame structure transmission line, the analysis area for human health effects from electric and magnetic fields would include the right of way with 30 feet to either side as a safety zone. This totals 105 feet along each alignment. According to the permit to construct, the safety zone can be adjusted if necessary to meet the electric field requirements set forth by the State of Montana of 1 kV/m at the edge of the right of way (safety zone) in residential and subdivision areas.

Information Sources

General EMF data were researched from the American Conference of Governmental Industrial Hygienists, the Institute of Electrical Engineers, the California Department of Health Services, the National Institutes of Health, World Health Organization, journal articles, and the National Institute of Environmental Health Sciences (NIEHS).

3.4.2 Affected Environment

The affected environment is described in terms of both magnetic and electric health concerns.

Magnetic Field Health Concerns

In recent years**, t**he focus of the EMF health studies for power lines has been on the magnetic fields created by the power lines. These studies investigated the potential that EMF exposure will increase the risk of cancer, leukemia, miscarriages, and other diseases.

A 60-Hertz (Hz) magnetic field is created in the space around transmission line conductors by the electric current flowing in the conductors. This is the frequency of ordinary household current, usually referred to as 60 cycle. The strength of the magnetic field produced by an electric transmission line depends on the electrical load, the configuration of the conductors (spacing and orientation), the height of the conductors, the distance from the line, and the proximity of other electrical lines. As the load on a transmission line varies continually on a daily and seasonal basis, the magnetic fields likewise vary throughout the day and year. Magnetic fields are highest closer to the line and diminish with distance. Physical structures, such as buildings, are transparent to magnetic fields created by power lines, thus fueling the interest in potential health effects.

Existing EMF levels in the project vicinity are primarily dominated by EMF from common household appliances. EMF levels of some common household appliances are listed in **Table 3.4-1**. This table shows that the magnetic fields at a distance of 3 feet range from less than 0.1 mG to 18 mG.

TABLE 3.4-1
EMF LEVEL OF SOME COMMON HOUSEHOLD APPLIANCES

Appliance	Magnetic Field at 3 feet (mG)
Clothes dryers	0.0 to 1
Clothes washers	0.2 to 0.48
Electric shavers	Less than 0.1 to 3.3
Fluorescent desk lamp	0.2 to 2.1
Hair dryers	Less than 0.1 to 2.8
Irons	0.1 to 0.2
Portable heaters	0.1 to 2.5
Television	Less than 0.1 to 1.5
Toasters	Less than 0.1 to 0.11
Vacuum cleaners	1.2 to 18.0

Notes:
EMF = electric and magnetic field
mG = milligauss
Source: Waveguide 2003

Existing transmission and distribution lines also contribute to EMF levels. **Figure 3.4-1** shows the existing 115-kV transmission lines in the project vicinity. As an example of maximum existing EMF, MATL has modeled EMF levels from the existing 115-kV transmission lines that run through the proposed project area. At a distance of 49 feet from the existing 115-kV transmission line (which coincides with the proposed location of MATL's new transmission line), the magnetic field is 6.5 mG and the existing electric field is 1.75 kV/m. At a distance of 200 feet from the existing 115-kV transmission line (which coincides with the edge of the safety zone of MATL's proposed transmission line), the magnetic field is 0.4 mG and the electric field is 1.06 kV/m. The existing EMF level at the edge of the proposed safety zone is expected to be below an average daily exposure to magnetic fields from some common household appliances (approximately 0.8 mG) (NIEHS 1999).

No Federal or state regulations are in effect specifying environmental limits on the strengths of magnetic fields from power lines. However, the state of Montana has adopted an electric field exposure value of 1 kV/m edge of right-of-way standard in residential and subdivided areas unless waived by the landowner and a 7 kV/m standard for road crossings. Some non-governmental organizations have set advisory limits on EMF as a precautionary measure, based on the knowledge that high field levels (more than 1,000 times the EMF found in typical environments) may induce currents in cells or nerve stimulation. The International Commission on Non-Ionizing Radiation Protection has established a continuous electric field exposure limit of 4.2 kV/m, and a continuous magnetic field exposure limit of 833 mG for members of the general public (NIEHS 2005).

Electric Field Health Concerns

Safety considerations in the immediate vicinity of electric power lines include the potential for electric shock, the clearance of the power lines above ground, measures to prevent unauthorized climbing of the poles, and the proximity of the transmission lines to other utilities such as oil wells and pipelines.

The electric field created by a high-voltage transmission line extends from the energized conductors to other conducting objects such as the ground, towers, vegetation, buildings, vehicles, and persons. Potential field effects can include induced currents, steady-state current shocks, spark discharge shocks, and in some cases field perception and neurobehavioral responses.

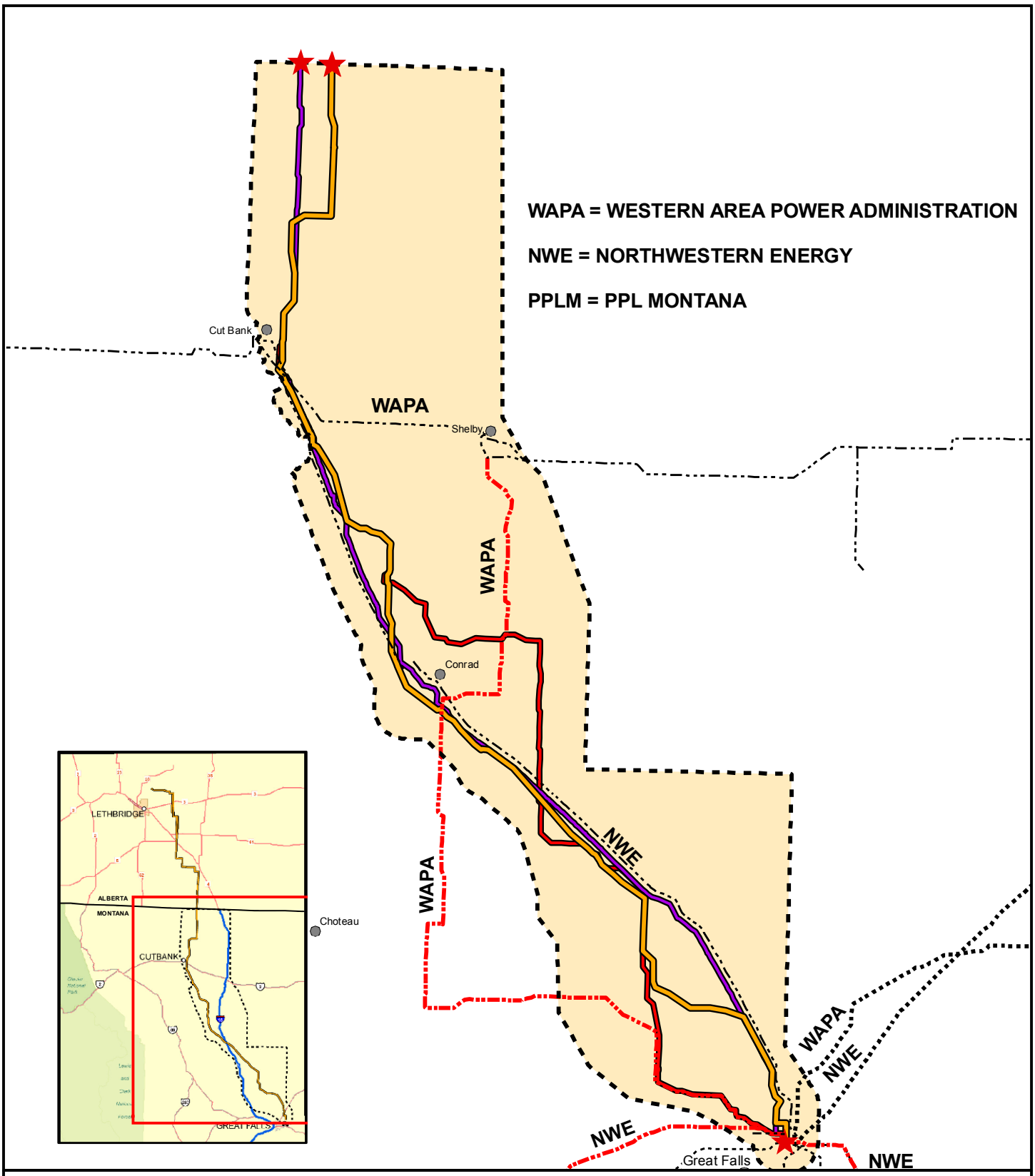


FIGURE 3.4-1
EXISITNG TRANSMISSION LINES LARGER THAN 69kV IN PROJECT VICINITY

LEGEND

- 230kV POWERLINE
- 161kV POWERLINE
- 115kV POWERLINE
- 100kV POWERLINE
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_4-1_MATL_Transmission_Lines_letter_012207.mxd

Sparking and Shocks

In a high electric field, it is theoretically possible for a spark discharge from the induced voltage on a large vehicle to ignite gasoline vapor during refueling. However, the probability for the precise conditions to occur for ignition is extremely remote. According to the Conrad-Shelby EIS (DOE 1986), the ignition of fuel under a transmission line would require that an individual be standing on damp earth or vegetation and that the vehicle to be refueled must be exposed to the maximum intensity of the electric field. The vehicle must also be insulated. Finally, the air-fuel mixture must approach optimal flash-point conditions. Therefore, the number of precise conditions to be met to achieve fuel ignition reduces the likelihood of the occurrence. In the event fueling is to be done under a power line, grounding is recommended.

Short Circuit Currents

When a conducting object, such as a vehicle or person, is placed in an electric field, currents and voltages are induced. Some representative short-circuit currents in undisturbed electric fields of 1 kV/m and 3.5 kV/m are provided in **Table 3.4-2**.

TABLE 3.4-2
SHORT CIRCUIT CURRENTS FOR VARIOUS OBJECTS IN MILLIAMPERES (MA)

	Electric Field	
Object	**1 kV/m**	**3.5 kV/m**
Person (5'8" tall)	0.016	0.06
Cow	0.024	0.08
Sedan	0.11	0.40
Camper truck (28'long)	0.28	1.00
Large trailer-truck (65x8.5x13.5)	0.93	3.30
Large haystacker and 4wd tractor	0.89	3.10
3- strand fence (200' long)	0.30	1.10

Source: Conrad –Shelby Transmission Line EIS (DOE 1986)

Based on the length requirements set forth by the U.S. Department of Transportation, the longest permitted truck in Montana is 65 feet. This is also the longest anticipated vehicle under the proposed transmission line with a short-circuit current of 0.93 milliampere (mA)/kV/m. Large farm equipment, such as hay wagons, sprayers, and combines, would also have large short-circuit currents but would not exceed the NESC criterion of 5 mA. Therefore, under worst case scenario conditions the short circuit current to the largest anticipated vehicle is 3.3 mA, which is less than the NESC criterion of 5 mA. The maximum height of a vehicle or piece of equipment passing under a transmission line should not be higher than 14 feet (NESC). If a person provides the only conducting path from the object to the ground, then the currents listed in **Table 3.4-2** flow through the person, when the person touches the object and

the object is below the line. Based on the action alternative descriptions, all equipment being operated around the transmission line should be properly grounded. In summary, electric field health concerns are:

- *Steady-State Current Shock* – Steady-state currents are those that flow continuously after a person contacts an object, such as a vehicle, and provides a path to ground for the induced current. The effects of these shocks range from involuntary movement in a person to direct physiological harm. Steady-state current shocks occur in instances of direct or indirect human contact with an energized transmission line. An example of indirect steady-state current shock would be similar to the incident that occurred when a young farm worker touched a grain auger to a transmission line while in contact with the auger. Based on the investigations by NIOSH following the incident, the current entered the worker through his hands and exited through his left foot. The worker therefore became the exit point for the steady state current. Injuries are more likely to result with lower voltage power lines than in higher voltage lines because contact is more likely. The electrical conductors of lower voltage lines are closer to the ground, smaller, and less noticeable.

- *Spark-Discharge Shocks* – Induced voltages appear on objects such as vehicles when there is an inadequate ground. If the voltage is sufficiently high, a spark-discharge shock will occur as contact is made with the ground. Spark-discharge shocks that create a nuisance occur in instances of carrying or handling conducting objects, such as irrigation pipe, under (not touching) transmission lines.

- *Field Perception and Neurobehavioral Responses* – When the electric field under a transmission line is sufficiently strong, it can be perceived by hair raising on an upraised hand. This is the effect of harmless levels of static electricity, similar to the effect of rubbing stocking feet on a carpet.

Other Health Concerns

An additional safety concern in the immediate vicinity of electric power lines is the potential for people to climb poles and either fall or receive a serious shock. Poles can be designed in a manner to prevent the unauthorized climbing of the poles by members of the public. With the increasing trend of large farm equipment, sufficient clearance height must be considered to avoid contact with the lines either directly or indirectly, as provided by the National Electric Safety Code.

Smoke can also be a conductor of electrical current. When a fire is in the vicinity of a 230-kV transmission line, the transmission line could start fires outside the fire perimeter. Current could potentially arc through the smoke shocking firefighters in the vicinity.

Corona Effects

Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors. Corona is of concern for potential audible noise (60-cycle hum), radio, television, and GPS interference, visible light, and photochemical reactions. Corona can occur on the conductors, insulators, and hardware of an energized high-voltage transmission line. Corona on conductors occurs at locations where the field has been enhanced by protrusions, such as nicks, insects, or drops of water. During fair weather, the number of these sources is small and the corona effect is insignificant. However, during wet weather, the number of these sources increases and corona effects are much greater (DOE 2001). Corona effects of concern are listed below.

- *Audible Noise* – Corona-generated audible noise from transmission lines is generally characterized as a cracking/hissing noise. The noise is most noticeable during wet weather conditions. Audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the right of way. Refer to Section 3.12 for a description of existing noise in proposed project area.

- *Radio, Television, and GPS Interference* – Corona-generated radio interference is most likely to affect the amplitude modulation (AM) broadcast band (535 to 1,605 kilohertz); frequency modulation (FM) radio is rarely affected. GPS units are operated at frequencies of 1575.42 megahertz (MHz) and 1227.6 MHz (Enge and Hatch 1996) and no interference is expected with the 60 Hz frequency associated with transmission lines. Only AM receivers located very near to transmission lines have the potential to be affected by radio interference. The potential for interference from corona effects is more severe during damp or rainy weather.

- *Visible Light* – Corona may be visible at night as a bluish glow or as bluish plumes. On the transmission lines in the area, the corona levels are so low that the corona on the conductors usually is observable only under the darkest conditions with the aid of binoculars.

- *Photochemical Reactions* – When coronal discharge is present, the air surrounding the conductors is ionized and many chemical reactions take place producing small amounts of ozone and other oxidants. Approximately 90 percent of the oxidants is ozone, while the remaining 10 percent is composed principally of nitrogen oxides. Refer to Section 3.11 for a description of existing air quality.

3.4.3 Environmental Impacts

This section discusses the potential human health and environment effects of the proposed project. Potential impacts on human hearing are addressed in Section 3.12, Noise.

3.4.3.1 Alternative 1 – No Action

Under the No Action alternative, MATL would not build the proposed transmission line and associated facilities as proposed. There would be no EMF exposure associated with the project. EMF exposure from existing transmission lines and household appliances would be expected to continue. There would be no corona effects associated with the project. There would be no associated safety issues regarding co-location with a natural gas or oil pipeline.

3.4.3.2 Alternative 2 – Proposed Project

Electric and Magnetic Field Effects. Alternative 2 would use single-circuit, H-frame structures, with two overhead shield wires. Three-pole structures would be used at medium and heavy angles, and dead ends, strung with 230-kV conductors. The spacing of the structures would be in the range of 500 to 1,600 feet apart and the conductors would be 21 feet above the ground. The minimum ground clearance of the conductors set forth in the National Electric Safety Code is 19.72 feet; therefore some additional ground clearance would help diminish the potential for induced current exposure.

Table 3.4–3 lists the EMF strength under normal anticipated load conditions for the 230-kV single-circuit transmission line using H-frame structures. For comparison, the EMF field strengths are also provided for monopole structures. There is a maximum thermal capacity of 420 megavolt amperes. EMF strength is given for normal operating configurations that would be used by MATL. The electric field strengths and magnetic field strengths under normal operating conditions optimized phasing for transmission lines (H-frame structures) are shown in **Figure 3.4-2** and **Figure 3.4-3**, respectively (SNC-LAVALIN 2006). The distances given represent the distance of a receptor from the centerline of the transmission line and one meter above the ground. At a given distance, the electric and magnetic field strength would be nearly identical on both sides of the transmission line.

TABLE 3.4-3
EMF EFFECTS

Structure Type	Location	Distance from Center Line (feet)	Electric Field (KV/m)	Magnetic Field (mG)
H-frame NESC Ground Clearance: 19.72 ft.	Below Conductor	20	5.7	262
	Right of Way Edge	52.5	1.7	62
	Alignment Edge	250	0.01	3.8
Monopole NESC Ground Clearance: 19.72 ft.	Below Conductor	10	5.0	175
	Right of Way Edge	52.5	0.8	37
	Alignment Edge	250	<0.01	<3.8

Note: Estimates calculated using Corona and Field Effects Program (Kingery 1991), and based on conductor ground clearance of 19.72 feet (NESC specification).
kV/m = kilovolts per meter
mG = milligauss

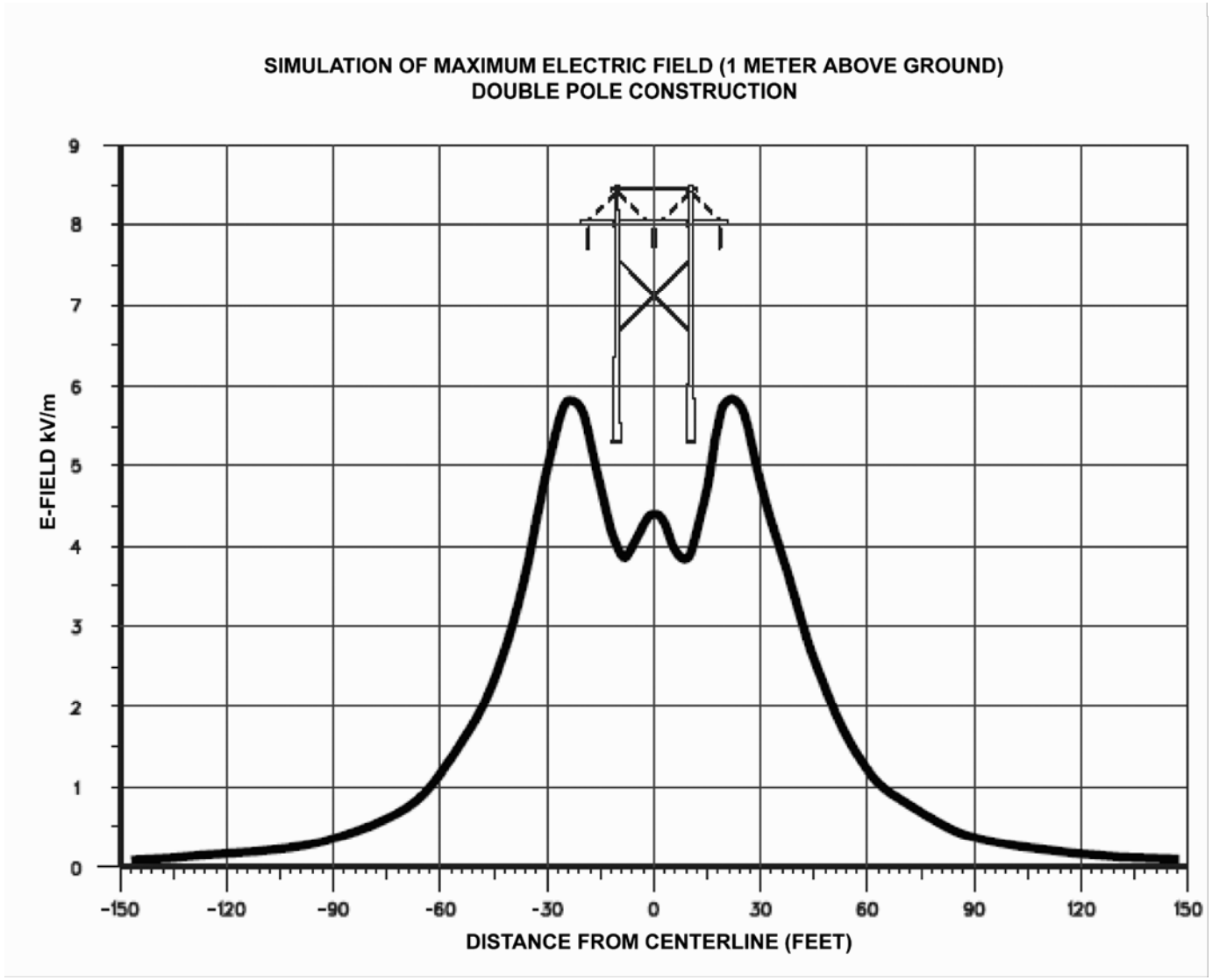


FIGURE 3.4-2
PROPOSED MATL POWERLINE
ELECTRIC FIELD STRENGTH FOR
NORMAL OPERATING CONDITIONS,
OPTIMIZED PHASING

E-Field - Electric Field
kV/m - Kilovolts per Meter

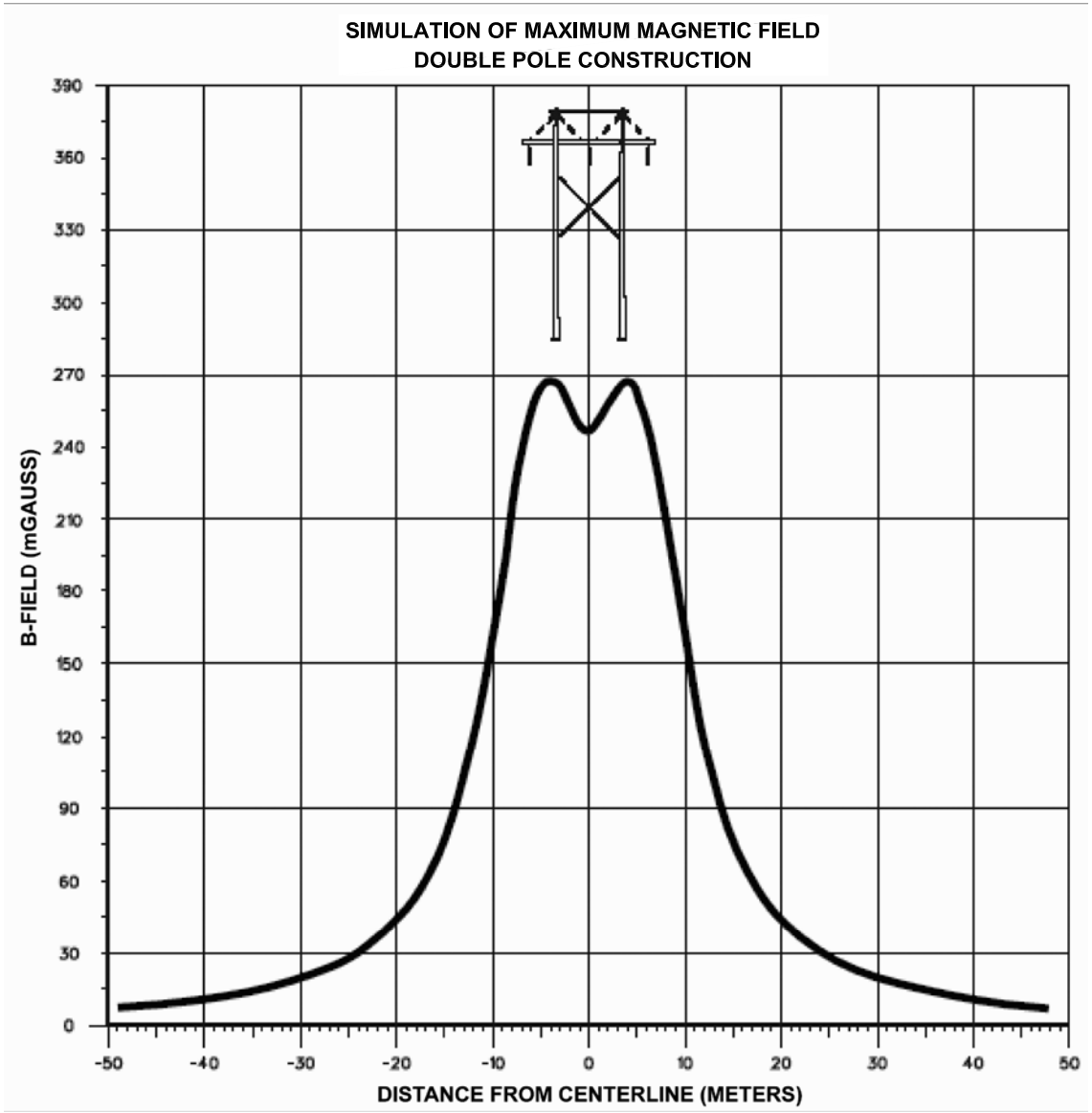


FIGURE 3.4-3
PROPOSED MATL POWERLINE
MAGNETIC FIELD STRENGTH FOR
NORMAL OPERATING CONDITIONS,
OPTIMIZED PHASING

B-Field - Magnetic Field
mGAUSS - Milligauss

Figure 3.4-3_Magnetic Field Strength.dwg - DWH - 02/28/2007 - S1528.03.IMPACT

EMF effects are presented in **Table 3.4–3.** Two shield wires, which provide necessary shielding for lightning protection, would be placed near the top of each pole to shield the 230-kV phase subconductors. Each circuit of a single-circuit transmission line consists of three phases; each phase consists of two subconductors.

Long-term electric field exposure at the nearest residences to Alternative 2 (located within 300 feet of the line) would be below the state of Montana 1 kV/m standard at the edge of the right of way and the 0.8 mG of average daily exposure to maximum magnetic fields from some common household appliances (NIEHS 1999). The EMF strengths conform to those normally found in comparable lines. Schools and commercial establishments would be located farther from the transmission line. The closest schools to the transmission line would be Glacier Elementary at 0.86 mile to the west of Alternative 2, and Conrad Christian School at 0.4 mile to the northeast of Alternative 3.

Safety. As described in Section 3.4.2, the electric field created by a high-voltage transmission line extends from the energized conductors to other conducting objects such as the ground, towers, vegetation, buildings, vehicles, and people. Potential field effects can include induced currents, steady-state current shocks, spark discharge shocks, field perception and neurobehavioral responses and smoke and fire. The following describes the potential for effects on safety, and design mitigation measures that would be incorporated.

Induced Currents. The 230-kV transmission line would have a minimum ground clearance of 21 feet to reduce the potential for induced current shocks. In addition, permanent structures in the safety zone, such as fences, gates, and metal buildings would be grounded.

Steady-State Current Shocks. Features reducing the level of potential for induced current in objects near the transmission line also reduce the level of a possible induced current shock. The proposed lines would be constructed in accordance with industry and MATL standards to minimize hazardous shocks from direct or indirect human contact with an overhead, energized line. These lines are expected to pose minimal hazards to humans.

Spark Discharge Shocks. In accordance with MATL's transmission line standards, the magnitude of the electric field would be low enough that spark discharge shocks would occur rarely, if at all. The potential for nuisance shocks would be minimized through standard grounding procedures. Carrying or handling conducting objects, such as irrigation pipe, under transmission lines can result in spark discharges that are a nuisance. The primary hazard with irrigation pipes or any other long objects, however, is electrical flashover from the conductors if the section of pipe is inadvertently tipped up near the conductors. In order to minimize these effects, the transmission lines would

be constructed with adequate ground clearance and any pipelines would be properly grounded. The use of farm augers under power lines should be conducted using the guidelines presented by the Occupational Health and Safety Administration (OSHA). As a general rule, when handling farm equipment of any type around power lines, one should stay 10 feet away on all sides (360 degrees).

Field Perception and Neurobehavioral Responses. Perception of the field associated with the transmission lines would not be felt beyond the edge of the safety zone. Persons working in the right of way might feel the field. Studies of short-term exposure to electric fields have shown that fields may be perceived (for example, felt as movement of arm hair) by some people at levels of about 2 to 10 kV/m, but studies of controlled, short-term exposures to even higher levels in laboratory studies have shown no adverse effects on normal physiology, mood, or ability to perform tasks (DOE 2001a). The International Commission on Non-Ionizing Radiation Protection Guidelines recommend that short-term exposures be limited to 4.2 kV/m for the general public. The exposures associated with the proposed Project are below this recommended limit, reaching a maximum of less than 1.5 kV/m within the safety zone (International Commission on Non-Ionizing Radiation Protection 2003).

The monopole steel structures that would be used are non-climbable. The ground clearance of the conductors would be a minimum of 21 feet, adequate clearance for safety considerations as related to most recreational activities.

Smoke and Fire. When a fire is in the vicinity of a 230-kV transmission line, firefighters would monitor smoke near the transmission line for possible fire starts outside of the fire perimeter. Firefighters would remain at a distance that would not leave them vulnerable to the electric current or shock.

Corona Effects. Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors. As described in Section 3.4.2, corona is of concern for potential audible noise, radio, television, and GPS interference, visible light, and photochemical reactions.

Audible Noise. Noise levels generated by the transmission lines would be greatest during damp or rainy weather. For the proposed lines, low-corona design established through industry research and experience would minimize the potential for corona-related audible noise. The proposed lines would not add substantially to existing background noise levels in the area. Research by the Electric Power Research Institute (1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-foot safety zone. During rainy or damp weather, an increase in corona-generated audible noise would be balanced by an increase in weather-generated noise.

For additional assessment of the noise from the proposed Project and alternatives, refer to Section 3.12.

Radio, Television, GPS Interference. Transmission line-related radio-frequency interference is one of the indirect effects of line operation produced by the physical interactions of transmission line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. The line would be constructed according to industry standards, which minimize the potential for surface irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware and other irregularities around the conductor surface that would increase corona effects. However, if such corona interference were to be generated, no interference-related complaints would be expected given the distance of residents from the transmission lines. Federal Communications Commission regulations require each project owner to ensure mitigation of any such interference to the satisfaction of the affected individual. Typical mitigation measures include: cleaning insulators, tightening line hardware, inspecting conductor surface for irregularities, relocating antennas, installing high-gain or directional antennas, connecting to a cable system or installing a translator station.

Power lines can affect the radio frequency of each GPS receiver. Manufacturers have different methods of shielding GPS signals; therefore, each receiver will react differently in the environment surrounding power lines. Damaged power lines may cause interference with GPS signals.

Visible Light. The corona levels associated with the proposed transmission lines would be similar to those of existing transmission lines. The visible corona on the conductors would be observable only under the darkest conditions with the aid of binoculars.

Photochemical Reactions. The maximum incremental ozone levels at ground level produced by corona activity on the proposed transmission lines would be similar to those produced by the existing lines in the area. During damp or rainy weather the ozone produced would be less than 1 part per billion. This level is low when compared to natural levels and their fluctuations (DOE 2001a).

Corona would be mitigated by using proper line design and by incorporating line hardware shielding. The design of electrical hardware and equipment considers the potential for corona effects.

Safety of Co-locating a Transmission Line and a Pipeline. There are a number of potential safety issues associated with constructing a transmission line near a buried natural gas or crude oil pipeline, related to electrical shock hazard and natural gas pipeline leaks and fire or explosion hazards should a natural gas leak occur.

A buried pipeline that shares an alignment with an alternating current transmission line, such as the one proposed for the project, could become energized by the EMF surrounding the power system in the air and soil. This alternate current interference may result in an electrical shock hazard for people touching the pipeline or metallic structures connected to the pipeline, and may cause damage to the pipeline coating, insulating flanges, or even damage to the pipeline's wall itself (Dawalibi 2004). However, the natural gas or oil pipelines would not carry electricity or otherwise present a shock hazard to residential gas users.

The transmission line would cross over several pipelines. Therefore, where feasible, a minimum distance of 132 feet from any above ground structures such as wellheads, would be maintained between the proposed transmission line and the edge of an existing pipeline right of way or the pipe itself. Additional mitigation measures include grounding mats, gradient wire controls, gradient control mats or grids and/or the installation of a cathodic protection system to the pipelines to minimize shock hazard and damage to the pipelines. MATL would consult with pipeline owners about the proposed project and once an exact location for the structures is determined, MATL would implement the appropriate mitigation measure. In addition, the transmission line would comply with all Federal and State regulations concerning co-locating a transmission line near a buried gas pipeline (Dawalibi 2004).

There are potential safety issues associated with construction and maintenance vehicles driving over any gas or oil pipelines. MATL would consult with any pipeline owner after final siting of the transmission line structures regarding this issue.

3.4.3.3 Alternatives 3 and 4 – MATL B and Agency Alternative

Alternatives 3 and 4 would also involve the construction of 230-kV single-circuit transmission lines. **Table 3.4-3** lists the EMF strength under normal anticipated load conditions for the 230-kV single-circuit transmission lines. **Figures 3.4-2** and **3.4-3** graphically illustrate the electric and magnetic field strengths, respectively, for the optimized phasing configuration of the transmission lines. The distances given represent the distance of a receptor from the centerline of the transmission line. At a given distance, the EMF strength would be nearly identical on both sides of the transmission line safety zone. Impacts described in Alternative 2 would be the same under Alternatives 3 and 4.

3.5 Water Resources

3.5.1 Analysis Methods

Surface water resources in the study area were evaluated using a GIS analysis for each alternative to identify locations where an alignment could cross a water body. For this evaluation it was assumed that:

- Disturbance for each alternative alignment could be within 250 feet to either side of the reference centerline.
- The probability for temporarily increasing sources of sediment to surface water is proportional to the number of water body crossings.

In addition, none of the action alternatives propose any beneficial use of groundwater. Furthermore, no project element has been identified that could possibly affect groundwater quality. Therefore, groundwater resources are not considered for impact analysis.

Information Sources

Data on water resources in the analysis area were obtained from a variety of sources including literature review, reports from the Montana Natural Heritage Program (NHP), the DEQ 2006 Integrated 303(d)/305(b) Water Quality Report, Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps, the Montana NRIS, and the MFSA application (MATL 2006b). Surface water flow and quality information were obtained from the USGS, the MBMG, and DEQ. To the degree possible, information was verified by ground reconnaissance during a team field trip May 17-18, 2006.

Analysis Area

The water resources analysis area is the same as the study area and encompasses about 2,260 square miles in northcentral Montana from the Montana-Alberta border to the Great Falls area (**Figure 1.1-1)**. This region includes portions of eight hydrologic subbasins in Montana, all of which contribute to the lower Missouri River Basin (**Figure 3.5-1)**.

The primary surface water features in the analysis area are Cut Bank Creek, the Marias River and the Dry Fork Marias River, Pondera Coulee, the Teton River, Benton Lake, Hay Lake, and the Missouri River. Isolated prairie potholes, lakes, and stock reservoirs are scattered throughout the analysis area.

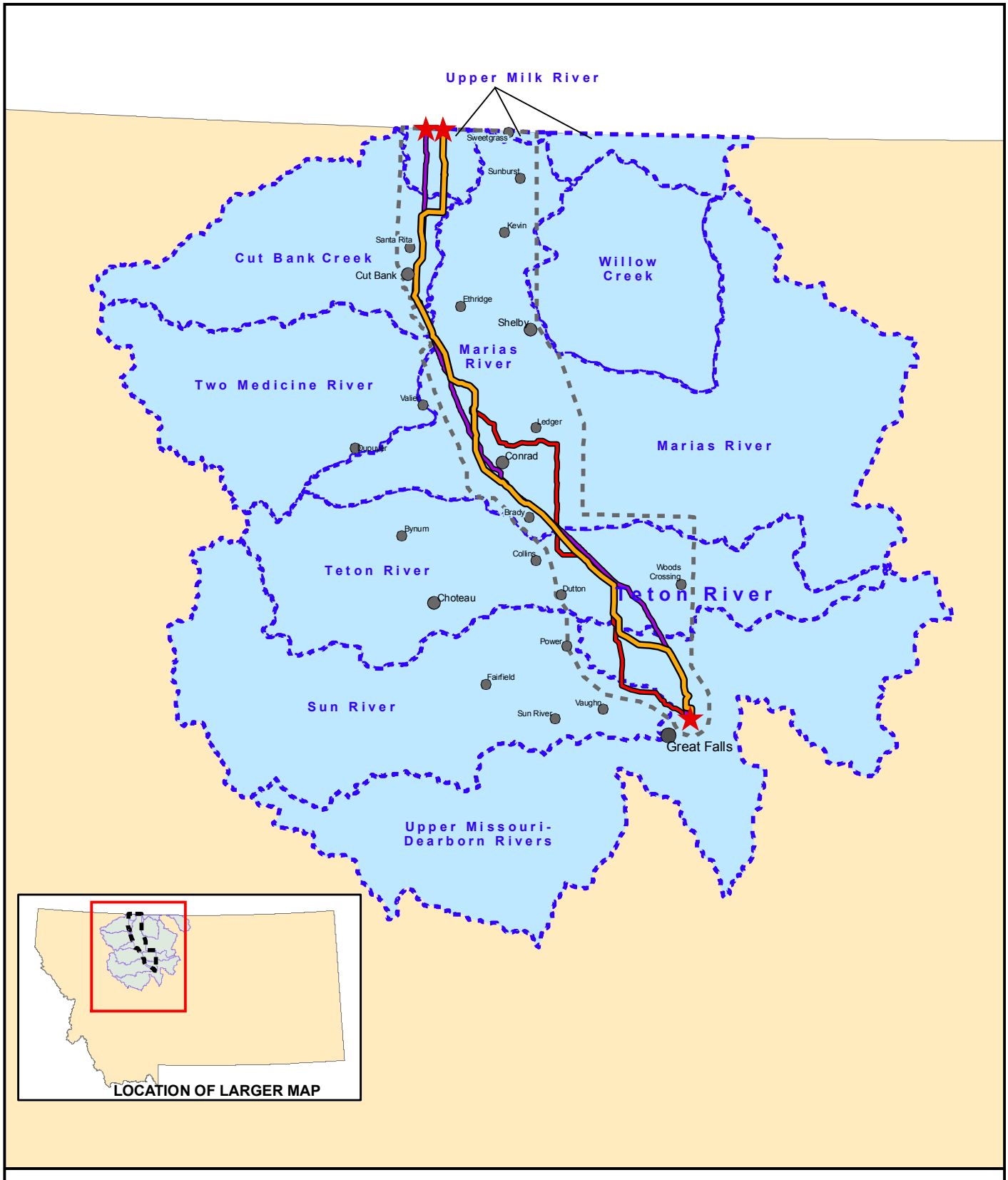


FIGURE 3.5-1
WATERSHEDS INTERSECTING THE STUDY AREA

LEGEND

- MAJOR WATERSHEDS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_5-1_MATL_Water_Study_Area_letter_012207.mxd

3.5.2 Affected Environment

The water resources analysis area is generally one of low topographic relief, low precipitation, and agricultural vegetation types. Elevations range from 4,372 feet above sea level in the northwest corner of the analysis area to about 3,016 feet above sea level on the Missouri River in the southeast corner of the analysis area.

Precipitation and Recharge

The region is semi-arid and precipitation patterns do not vary widely throughout the analysis area. Average annual precipitation varies from 11.6 inches per year near Cut Bank to 15.2 inches per year near Great Falls (Western Regional Climate Center [WRCC] 2006). Winters can be extremely cold with desiccating winds and snow. May and June are the wettest months; however, perennial streams and rivers are sustained primarily from moisture derived from mountain snowpack.

Activities that Affect Resource Conditions

Water resources of the analysis area, including both surface water and groundwater, are affected directly or indirectly by human activities such as irrigation, livestock use, industry, oil and gas development, domestic consumption, and to a lesser extent by recreation and transportation. These interdependencies can affect human health, wildlife, engineered structures, and economics of the region. The primary beneficial uses of water in the analysis area include agriculture, support of domestic activities, and fish and aquatic life.

Water Quality

No specific areas of water quality problems have been recorded for water in the analysis area other than impaired water bodies identified by DEQ. The U.S. Clean Water Act Section 303(d) requires that each state submit a biennial report to the EPA that identifies water bodies that are water quality limited. The resulting 303(d) list provides the basis for systematically tracking state waters that do not meet water quality standards. Streams and rivers designated as 303(d) or impaired streams in the analysis area are: Old Maids Coulee (an intermittent stream), Pondera Coulee, Cut Bank Creek, Marias River, Teton River, Lake Creek, and the Missouri River. The 303(d) streams are shown on **Figure 3.5-2.** The Marias River is expected to be delisted in early 2007, and Benton Lake is listed as "impaired." Summary sheets describing the impaired river segments, the type of impairment, and the cause of the impairment are provided in **Appendix I**.

N

0 4 Miles

OLD MAIDS COULEE

City of Cut Bank

Devon Water Inc

MARIAS RIVER

MARIAS RIVER

DRY FORK

PONDERA COULEE

Tiber County Water District
Conrad Water Department

Brady County Water District

TETON RIVER

LETHBRIDGE

ALBERTA

MONTANA

CUTBANK

Glacier National Park

Lewis and Clark National Forest

GREAT FALLS

Power Teton County Water District

LAKE CREEK

MISSOURI RIVER

City of Great Falls

FIGURE 3.5-2
HYDROLOGIC FEATURES AND WATER QUALITY

LEGEND

- MUNICIPAL POTABLE WATER SOURCE (DEQ)
- RIVERS AND STREAMS
- IMPAIRED 303(d) STREAMS
- LAKES AND PONDS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_5-2_MATL_Water_Quality_012207.mxd

Water Rights

Existing water rights would not be affected by the proposed Project.

Surface Water

The analysis area is located within the Missouri-Marias watershed subregion in west central Montana. Portions of the analysis area fall within one or more of the following 4th level hydrologic unit codes (HUC): Upper Milk River, Cut Bank Creek, Marias River, Two Medicine River, Willow Creek, Teton River, Sun River and Upper Missouri-Dearborn rivers (USGS 2006a). Surface water flow data presented herein were retrieved from the USGS website (USGS 2006c).

One water body within the analysis area has been identified by the FWP as a blue ribbon or red ribbon fishery river depending on the stream reach (Missouri River). The locations at which all three alternatives cross the Marias and Teton rivers are considered habitat class 3 and sport class 4 fisheries. Some streams in the analysis area are perennial (typically have surface flow throughout the year). These streams are shown on **Figure 3.5-2**. However, most other streams in the analysis area are either ephemeral (flow only in response to snowmelt or rainfall) or intermittent (flow only in response to groundwater recharge and precipitation). Numerous intermittent streams, lakes, reservoirs, and prairie potholes are also present within the analysis area.

A summary of surface water resources and water quality in the analysis area organized by HUC is provided in **Appendix J**. Surface water quality is also summarized on **Figure 3.5-2**.

Lakes and Reservoirs

The analysis area contains a number of lakes and reservoirs; however, there are some portions of the analysis area that are nearly devoid of lakes, such as the area between Benton Lake and the Teton River.

All surface water bodies with areas at least 5 acres in size and crossed by an alternative alignment are presented on **Figure 3.5-2.** The largest of these water bodies is Benton Lake, which is located in the southeastern portion of the analysis area. Benton Lake is a glacially formed 5,000-acre shallow wetland. Other large lakes include Aloe Lake and Hay Lake, both of which are located north of the Marias River. Numerous smaller lakes are found throughout the area. **Appendix J** lists the lakes in the analysis area that are at least 20 acres in size and all lakes greater than 5 acres that are crossed by one of the action alternatives.

Municipal Water in the Analysis Area

Most of the municipal watersheds serve as groundwater sources for one or more communities, while a smaller number serve as surface water sources. Municipal watersheds with potable surface water bodies include the Cut Bank Watershed (Cut Bank Creek) and the Marias Watershed.

There are six water districts within the analysis area that rely on surface water for potable water. These include Cut Bank, Devon Water, Inc., Tiber County Water District (Conrad Water Department), Brady County Water District, Power Teton County Water District, and the City of Great Falls.

3.5.3 Environmental Impacts

Water resources and associated infrastructure that potentially could be affected by the proposed project include perennial streams and rivers, ephemeral and intermittent drainages, floodplains, irrigation ditches and canals. Temporary impacts to water are categorized as lasting less than 30 days, short-term impacts are less than 1 year, and long-term impacts are greater than 1 year. Adverse impacts to water (if they occur) would be considered major if they meet one or more of the following criteria:

- If the expected water use would exceed the capacity of the potable water system for a community or individual.
- If the quantities of stream flow affecting downstream beneficial uses would be altered.
- If groundwater withdrawals would affect either the quantity or quality of existing water supply wells within a 1-mile radius of the proposed withdrawal location.
- If stream bank disturbance would result in pronounced sedimentation or if disturbance would cause streambed erosion or sedimentation.
- If wastewater discharge would result in erosion contributing to sedimentation in surface water.
- If an alternative would result in a reduction in the quantity or quality of water resources to below Montana water quality standards or in violation of a TMDL plan for existing or potential future uses.
- If the proposed Project or alternatives would cause substantial flooding or erosion, or subject people or property to flooding or erosion.

All project alternatives were evaluated to identify adverse impacts to water resources using the above criteria. No major impacts to water resources are predicted for any of the action alternatives. The only minor issue is the potential for soil erosion that could contribute to higher levels of suspended sediment at water body crossings. A comparison of alternatives showing the number of crossings is provided in **Table 3.5-1**.

Figure 3.5-2 shows the locations of crossings for each alternative. The suspended sediment issue is further discussed below.

TABLE 3.5-1
HYDROLOGY – COMPARISON OF ALTERNATIVES

Alternative	Linear Miles	Mileage Difference Compared to Alternative 2	Stream or River Crossings[a]	Lake Crossings[a]	Total Crossings[a]
1	0	Not Applicable	0	0	0
2	129.9	Not Applicable	10	4	14
3	121.6	8 miles shorter	6	6	12
4	139.6	10 miles longer	17	2	19

Note: [a] A crossing is assumed if a water body is within 250 feet of the reference centerline, the width of the alignment that DEQ would approve. Actual disturbance from construction would typically be less than 100 feet wide as indicated in **Table 2.3-2**.

3.5.3.1 Alternative 1 — No Action

Under the No Action alternative, the existing water use and land use activities near surface water would continue. Activities described under the action alternatives would not take place. There would not be an alteration to area water resources due to transmission line installation and maintenance; therefore, no impacts to water resources would occur.

3.5.3.2 Alternative 2— Proposed Project

Impacts to Surface Water and Floodplains

Despite implementation of a storm water control plan, Alternative 2 would likely result in minor, short-term, adverse impacts to surface water quality by temporarily increasing sources of sediment during the construction phase of the proposed project. Stream crossing construction activities (such as pole placement, road construction, and staging areas for construction) could potentially take place in either a localized area, or parallel and adjacent to a stream. Construction activities in flowing or standing water would result in the greatest impact, and would be avoided. Minor short-term sediment impacts would continue until reclamation was complete and the surface was revegetated. Minor long-term adverse impacts to surface water quality could occur if temporary roads near water crossings were constructed and remained in use after project construction activities were complete.

The Alternative 2 alignment would cross a body of water up to 14 times, including eight perennial streams (Teton River, Pondera Coulee, Spring Coulee, Dry Fork Marias, Schultz Coulee, Bullhead Creek, Marias River, and Red River [three crossings]; and four

lakes ranging in size from 7 acres to 121 acres (Black Horse Lake [west finger], an unnamed lake in the Marias River Basin, Hay Lake, and Grassy Lake).

Alternative 2 includes measures to mitigate or prevent adverse impacts to surface water. Pole structures would not be installed below the normal high-water mark. MATL proposes to prepare and implement a Storm Water Erosion Control Plan and comply with all requisite permit conditions. These measures would effectively reduce short-term and long-term risk of sedimentation to surface water to minor adverse impacts.

3.5.3.3 Alternatives 3 and 4

Alternative 3

Adverse, short-term impacts for Alternative 3 are similar to, but slightly less than Alternative 2. Overall, there is less potential to generate suspended sediment for Alternative 3.

The Alternative 3 alignment would cross a body of water only 12 times, including six perennial streams (Teton River, Pondera Coulee, Spring Coulee, Dry Fork Marias, Bullhead Creek, and Marias River) and six lakes ranging in size from 8 acres to 116 acres (Black Horse Lake [west finger], an unnamed lake in the Missouri Sun-Smith Basin, two unnamed lakes in the Marias River basin, and two unnamed lakes in the Upper Milk River Basin).

Alternative 4

Adverse, short-term impacts for Alternative 4 are similar to, but slightly more than Alternative 2 and Alternative 3. Overall, there is more potential to generate suspended sediment for Alternative 4.

The Alternative 4 alignment would cross a body of water up to 19 times, including six perennial streams (Lake Creek, Pondera Coulee, Spring Coulee, Dry Fork Marias, Schultz Coulee [two crossings], Bullhead Creek, the Marias River, and Red River [three crossings]; and two lakes ranging in size from 115 acres to 160 acres (Hay Lake and Grassy Lake).

3.6 Wetlands

3.6.1 Analysis Methods

Wetlands are lands transitional between terrestrial and aquatic systems and are among the most biologically productive ecosystems in the world. Wetlands are defined as areas that are inundated or saturated by surface or groundwater at frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, fens, marshes, bogs, and similar areas (COE 1987).

Wetlands are of critical importance to the protection and maintenance of a large array of plants and animals, including threatened and endangered species, by providing essential seasonal habitats. Wetlands help protect the quality of surface water by impeding the erosive forces of moving water and trapping waterborne sediment and associated pollutants, protecting water supplies by assisting the purification of surface water and groundwater resources, maintaining base flow to surface waters through the gradual release of stored floodwaters and groundwater, and providing a natural means of flood control and storm damage protection through the absorption and storage of water during high-runoff periods.

Activities that involve a disturbance or backfilling of material in a wetland are typically regulated by local, state, and federal government agencies through the authorities granted by Sections 401 and 404 of the U.S. Clean Water Act. Section 401 of the Clean Water Act provides the means for Montana local and state agencies to regulate and control the degree of impact of discharges on state waters, including wetlands. Montana's primary water quality protection is granted through the implementation of the Montana Water Quality Act. Section 404 of the Clean Water Act provides protection for wetlands that (1) meet three criteria (wetland hydrology, hydric soils, and hydrophytic vegetation) as defined in the Wetlands Delineation Manual (COE 1987), and (2) are connected through an inflow or outflow to a defined surface water drainage. Isolated wetlands, such as a prairie pothole or small ponds, are no longer protected by Section 404 of the Clean Water Act (COE 2001). However, any discharge of pollutants to isolated wetlands that contain water is still subject to provisions of the Montana Water Quality Act.

Analysis Area

The analysis area for the wetland resources includes all wetlands (jurisdictional or non-jurisdictional) within the Project study area (**Figure 1.1-1**). Most of the wetlands have been identified, classified, and digitized, and the data are available to download from the FWS website. The analysis addresses the proposed and alternative transmission line alignments in greater detail.

Information Sources

Wetlands within the Project study area are available from a FWS website (FWS 2006) on a format known as National Wetland Inventory (NWI) maps. However, there are no wetland data available for portions in Teton County from approximately the town of Brady south to just north of Benton Lake NWR. Other sources of data, including USGS 7.5-minute topographic maps, FEMA maps, and the 2005 orthophotographs (Montana NRIS 2006a), were used for the Teton County area to determine potential wetlands along the proposed and alternative alignments. In addition, the data provided in the MFSA application (MATL 2006b) were reviewed and field investigations were conducted in July and August 2005 to ground-truth mapped wetlands and identify previously unmapped wetlands.

3.6.2 Affected Environment

The system used to classify the wetland types is based on the classification system developed by Cowardin and others (1979). Three basic types of wetlands, lacustrine (lakes); palustrine (ponds); and riverine (rivers and streams), were identified within the analysis area. Within these three types were 14 individual wetland classes (**Table 3.6-1**). The lacustrine wetlands include intermittent and permanently flooded lakes and reservoirs. The palustrine group includes all wetlands dominated by trees, shrubs, emergents, mosses, or lichens. Two main riverine wetlands (lower perennial and upper perennial) were identified within the analysis area and they typically contain natural or artificial channels that have either periodically or continuously flowing water.

TABLE 3.6-1
WETLAND TYPES MAPPED IN ANALYSIS AREA

No.	Wetland Types	Wetland Class	Wetland Code
1	Lacustrine/Limnetic	Unconsolidated Bottom	L1UB
2	Lacustrine/Littoral	Aquatic Bed	L2AB
3	Lacustrine/Littoral	Unconsolidated Shore	L2US
4	Palustrine	Aquatic Bed	PAB
5	Palustrine	Emergent	PEM
6	Palustrine	Forested	PFO
7	Palustrine	Scrub-Shrub	PSS
8	Palustrine	Unconsolidated Bottom	PUB
9	Palustrine	Unconsolidated Shore	PUS
10	Riverine/Lower Perennial	Unconsolidated Bottom	R2UB
11	Riverine/Lower Perennial	Unconsolidated Shore	R2US
12	Riverine/Upper Perennial	Rock Bottom	R3RB
13	Riverine/Upper Perennial	Unconsolidated Bottom	R3UB
14	Riverine/Upper Perennial	Unconsolidated Shore	R3US

The following factors were considered when evaluating potential impacts to wetland and non-wetland waters of the U.S. resources from the transmission line alternatives:

- Net permanent loss of any wetland areas or functions,
- Net temporary loss of any wetland areas or functions,
- Effects on the condition and functional integrity of other wetlands that may be impacted but do not experience net loss,
- Potential for wetland filling from grading or construction activity or excavation and backfill,
- Potential for wetland flooding from construction activities, incorrect design or placement of culverts, or an increase in impervious areas adjoining wetlands that may raise water levels,
- Potential for wetland draining from grade changes that may divert surface flow that formerly fed wetlands in isolated depressions,
- Potential for wetland sedimentation resulting from surface soil disturbance adjacent to wetlands, and
- Wetland water quality degradation from contaminants in runoff.

Table 3.6-2 provides a percentage and area breakdown for all 14 wetland types that are sited in the analysis area. **Figures 3.6-1, 3.6-2, and 3.6-3** show the location of all mapped wetlands within the study area.

TABLE 3.6-2
PERCENTAGE AND AREA OF WETLAND TYPES IN ANALYSIS AREA

Wetland Type	Percent of Total Wetland Area	Area (acres)
Lacustrine/Limnetic – L1UB	1.2	401
Lacustrine/Littoral – L2AB	4.2	1,429
Lacustrine/Littoral – L2US	11.4	3,909
Palustrine – PAB	4.9	1,694
Palustrine – PEM	69.0	23,635
Palustrine – PFO	0.02	7
Palustrine – PSS	0.4	146
Palustrine – PUB	0.3	106
Palustrine – PUS	3.6	1,240
Riverine/Lower Perennial – R2UB	2.5	865
Riverine/Lower Perennial – R2US	1.1	379
Riverine/Upper Perennial – R3RB	0.02	5
Riverine/Upper Perennial – R3UB	1.0	346
Riverine/Upper Perennial – R3US	0.3	100
Totals	**100.0**	**34,262**

N

0 3 Miles

Dutton

Woods Crossing

Power

Vaughn

Great Falls

15

87

FIGURE 3.6-1
WETLANDS IN STUDY AREA SOUTH

LEGEND

WETLAND TYPE
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED - SHRUB WETLAND
- FRESHWATER POND
- RIVERINE WETLAND
- OTHER WETLAND
- LAKE
- 24K TOPO MAPS WITH NO WETLANDS DATA

NOTE: WETLANDS DATA FROM NATIONAL WETLANDS INVENTORY, USFWS.

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- RIVERS AND STREAMS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_6-1_MATL_Wetlands_South_012007.mxd

Shelby
Valier
Ledger
Conrad
Brady
Collins
Dutton
2
44
15
N
0
4
Miles

FIGURE 3.6-2
WETLANDS IN STUDY AREA MIDDLE

LEGEND

WETLAND TYPE
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED - SHRUB WETLAND
- FRESHWATER POND
- RIVERINE WETLAND
- OTHER WETLAND
- LAKE
- 24K TOPO MAPS WITH NO WETLANDS DATA

NOTE: WETLANDS DATA FROM NATIONAL WETLANDS INVENTORY, USFWS.

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- RIVERS AND STREAMS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_6-2_MATL_Wetlands_middle_012007.mxd

N

0 4 Miles

Sunburst

Kevin

Santa Rita

Cut Bank

Ethridge

Shelby

Valier

2

15

44

FIGURE 3.6-3
WETLANDS IN STUDY AREA NORTH

LEGEND

WETLAND TYPE
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED - SHRUB WETLAND
- FRESHWATER POND
- RIVERINE WETLAND
- OTHER WETLAND
- LAKE
- 24K TOPO MAPS WITH NO WETLANDS DATA

NOTE: WETLANDS DATA FROM NATIONAL WETLANDS INVENTORY, USFWS.

- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- RIVERS AND STREAMS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_6-3_MATL_Wetlands_North_012007.mxd

Palustrine wetlands are the most common wetland type in the analysis area and are primarily found along creek channels, coulees, and in association with prairie potholes formed by depressions left by glaciation. Coulees often have a flat-bottomed valley enclosed by somewhat steep hillsides with the wetland areas generally restricted to the narrow incised stream channel (MATL 2006b). Many of the prairie potholes are less than 1 acre in size and may have permanent, semipermanent, or seasonal to temporary inundation (Montana Partners in Flight 2000). Prairie potholes can either be landlocked, or have a drainage outlet to an adjacent stream or other potholes.

The palustrine emergent wetlands account for approximately 69 percent of the total wetlands (**Table 3.6-1**). Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytic vegetation and are often dominated by perennial plants (Cowardin and others 1979). Drainages in the MATL analysis area contain overstory vegetative communities comprised of trees and shrubs, such as boxelder (*Acer negundo*), silver sagebrush, chokecherry, Woods' rose, willow, silver buffaloberry, and western snowberry (MATL 2006b). The palustrine emergent wetland areas are found primarily along the current channels and in older meander lobes within the drainage valley. Palustrine emergent vegetation may occur as an understory component in areas mapped as riparian or forested sections of the drainage. Where not previously cultivated, the vegetation types in the prairie pothole wetlands within the analysis area are dominated by herbaceous communities, including water sedge (*Carex aquatilis*), clustered field sedge (*Carex praegracilis*), narrow spike reedgrass (*Calamagrostis stricta*), Baltic rush (*Juncus balticus*) and tufted hairgrass (*Deschampsia caespitosa*), as well as shrubby cinquefoil (*Dasiphora floribunda*) (MATL 2006b).

Most of the prairie potholes in the analysis area have standing water for much of the growing season in years of normal or above normal precipitation. These depressional geomorphic features capture water from precipitation, snowmelt, and from groundwater (Hansen and others 1995). Typically the water is retained in the potholes due to a bottom soil layer with reduced permeability. Evaporation and transpiration are the major causes of water loss, although seepage and surface outflow can also be sizable for some potholes (Hanson and others 1995). However, during dryer periods, some portions of potholes often become incorporated into farming plans and are either planted to row crops (for example wheat) or are mowed as part of a haying operation. Prairie pothole wetland losses are estimated to be from 30 to 50 percent in Montana (Montana Partners in Flight 2000). Prairie pothole wetlands are often difficult to delineate and characterize because the wetland indicators and other parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events (COE 1987). Prairie potholes occur throughout the analysis area; however, the potential to encounter prairie potholes declines in the southern portion of the analysis area due to changes in geomorphology and to agricultural practices that may have impacted or eliminated the smaller wetlands.

The most notable lacustrine wetland area in the analysis area is found in the southern portion. Benton Lake NWR is located 12 miles north of Great Falls. It is at the western edge of the farmed Prairie Pothole region, a region characterized by millions of wetlands or potholes, which serve as the breeding ground for most of the Nation's waterfowl (MATL 2006b). The 19-square-mile Benton Lake NWR was established in 1929 as a refuge and breeding ground for birds. Despite its name, Benton Lake is actually a 5,000-acre shallow wetland created by the last continental glacier thousands of years ago. During the late 1950s and early 1960s, a pump house and pipeline were built to bring water to the refuge from Muddy Creek. Dikes were built to divide the wetland into manageable units, and refuge roads and facilities were constructed. Water still flows from the original pump station on Muddy Creek, but the refuge wetlands have been further divided for more efficient water management.

The wetland areas provide valuable tree and understory plant diversity, stable coulee bottoms that can attenuate and alter flood flows, and valuable breeding areas for duck species, eared, horned, and red-necked grebes, Franklin's gull, Forster's terns, black terns, yellow-headed blackbirds, and Wilson's phalaropes. MATL project wetlands also provide important habitat for nesting and foraging for many birds and other wildlife species. In particular, the 5,000 acres of shallow wetlands associated with the Benton Lake NWR area are managed primarily to provide refuge and breeding ground for birds.

The riverine wetland types mapped within the analysis area are the seasonally and permanently flowing river channel bottoms associated with the Teton River, Pondera Coulee, Spring Coulee, Dry Fork Marias, Schultz Coulee, Bullhead Creek, Marias River, and Red River. The Marias, Dry Fork Marias, and Teton rivers support the most important forested riparian habitats in the analysis area (MATL 2006b). The riverine habitats typically have an understory of grasses and shrubs with an overstory of cottonwood trees (plains cottonwood and narrowleaf cottonwood) and other larger deciduous shrubs and trees (chokecherry, wild currant, Woods' rose, and willows) that intermittently line the rivers.

3.6.3 Environmental Impacts

This section describes the types of impacts that could occur and effects of these impacts on wetland resources specifically. **Table 2.3-4** addresses mitigation measures and best management practices that can be implemented to reduce potential impacts to wetlands and surface water resources.

Potential impacts to wetlands associated with the construction and operation of the MATL 230-kV transmission line project include:

1. alterations to the wetland hydrology,
2. alterations to the wetland plant communities, and
3. loss of wetlands due to filling or sedimentation.

Alterations to the wetland hydrology would most likely occur during the construction phase when working in adjacent areas causes surface water flows to be changed or modified. Many of the wetlands in the analysis area are palustrine emergent wetlands. These wetlands are situated just below the high water line; thus any small modification to the existing drainage pattern could potentially re-direct surface water flows away from these areas that depend on temporary flood waters to saturate the soils and create wetland conditions.

Alterations to the wetland plant community are also most likely to occur during the transmission line construction phase. A change in the composition of the wetland plant community may be associated with and result from an alteration to the wetland hydrology, or this impact may be unrelated. A wetland plant community may be physically altered by mechanical disturbance during the construction activities, or the vegetation could be only temporarily trampled from parking or driving across these areas.

No direct filling or covering of wetland areas is intended as a result of implementing any of the action alternatives. However, construction activities adjacent to wetlands may inadvertently result in erosion sediment transport and deposition into wetlands as the result of exposed soils and concentrated runoff down vehicle tracks and roads. MATL would implement erosion and sediment control practices as required by the State of Montana (**Appendix F**). MATL would also reduce or avoid impacts to wetlands by implementing mitigation, avoidance, or other environmental protection measures (MATL 2006b).

The areas of individual wetlands were determined based on the shape and size of the polygons in the existing NWI maps. MATL would avoid individual wetlands by working with the engineering designs to span or align around all wetlands within the 500-foot-wide alignment (MATL 2006b). In addition, the Benton Lake NWR wetlands would not be directly affected by the action alternatives. Potential indirect impacts to the Benton Lake NWR wetlands would be associated with a potential reduction of habitat (Section 3.8 Wildlife).

In order to assess potential impacts of the MATL transmission line project to wetlands, typical construction and operational practices used in the utility industry were reviewed. Potential impacts to wetlands were evaluated in association with the need to

construct access roads and in relationship with the methods used and engineering constraints involved with spanning over and constructing around wetlands and drainage crossings. MATL may not require any Section 404 and 401 permits if it avoids discharging sediment or fill materials into wetlands or Waters of the U.S. The wetland impact assessment assumes MATL would comply with all requisite permitting requirements. Each alternative was evaluated to determine the potential number of wetlands, size of wetlands, and the general location of wetlands and ephemeral drainage crossings.

3.6.3.1 Alternative 1 – No Action

The No Action alternative would produce no adverse impacts to wetland resources. However, negligible to minor, long-term adverse impacts would continue from existing land uses. Runoff and erosion, primarily from agricultural lands, would continue to carry sediments and possibly nutrients and other pollutants to wetlands and surface water resources causing potential impacts. Sedimentation is a major contributor to the impairment of streams and rivers and reduction of functions for wetlands in Montana and the U.S.

3.6.3.2 Alternative 2 – Proposed Project

Wetland types and amounts potentially impacted by Alternative 2 are provided in **Table 3.6-3**.

TABLE 3.6-3
WETLANDS POTENTIALLY AFFECTED BY ALTERNATIVE 2

NWI Wetland Class	Acres within 500-foot alignment
Palustrine Emergent (PEM)	59.1
Palustrine Unconsolidated Shore/Bottom/Aquatic Bed (PUS, PUB, & PAB)	5.3
Lacustrine (L2)	0.8
Riverine (R3)	2.4
Total	67.6

In total, about 67.6 acres of wetlands have been mapped within the 500-foot Alternative 2 alignment. The largest wetland crossing within the Alternative 2 500-foot alignment would be approximately 510 feet. This wetland could be spanned assuming a typical span length of 500 to 800 feet. The wetland total acreage does not include any wetlands that were visually identified by MATL (MATL 2006b) in the approximately 22 miles of the Alternative 2 alignment through Teton County where no official NWI data currently exist. Recent aerial photographs from 2005 of the Alternative 2 alignment through Teton County were reviewed. In concurrence with MATL, several small wetland areas were observed on the photographs, but acreage quantification was not possible. No

single large wetland or concentration of wetlands covering more than approximately 500 feet was noted.

Most of the potentially impacted wetlands (approximately 87 percent) were palustrine emergent wetlands with only about 2.41 acres of riverine wetlands impacted at the Teton River, Dry Fork Marias River, and Marias River crossings. Approximately 75 percent of the potentially impacted wetlands are located in the area north of Cut Bank (Milk River Pothole area) and an area east and south of Conrad (Teton River area). The potential impacts to these wetlands are alterations to the hydrology, alterations to the plant communities, and some minor filling from local sediment. The greatest potential impact to wetlands would be during construction.

The Alternative 2 alignment does cross approximately 0.8 acres of a delineated seasonally flooded lacustrine area near milepost 5 by Black Horse Lake. MATL has stated that it would conduct a soil investigation of this area and use either self-supporting steel poles with concrete caisson foundations or 3-pole wood structures with poles installed inside pipe piles. Guy wire screw anchors would be installed to an adequate holding capacity depth for this specific location (Williams 2007). The remaining wetlands are scattered along the alignment, including near the Benton Lake NWR area. Overall with successful implementation of the MATL proposed environmental protection measures and the required DEQ environmental specifications, impacts to wetlands under Alternative 2 would be minor and primarily of short duration.

3.6.3.3 Alternative 3 – MATL B

Alternative 3 is 8.3 miles shorter than Alternative 2 (121.6 miles vs. 129.9 miles) due to more diagonal segments along the entire alignment. The wetland types impacted by this alternative are of a similar class as those under Alternative 2, but the area of potentially impacted wetlands is less under Alternative 3 **(Table 3.6-4)**.

TABLE 3.6-4
WETLANDS POTENTIALLY AFFECTED BY ALTERNATIVE 3

NWI Wetland Class	Acres within 500-foot alignment
Palustrine Emergent (PEM)	49.7
Palustrine Unconsolidated Shore/Bottom/Aquatic Bed (PUS, PUB, & PAB)	8.3
Lacustrine (L2)	0.8
Riverine (R3)	3.5
Total	62.3

A total of about 62.3 acres of wetlands within the 500-foot alignment have been mapped along the Alternative 3 alignment, compared to 67.6 acres along the Alternative 2 alignment. The total wetland area does not include any wetlands visually identified by MATL (MATL 2006b) during the baseline field work in the 25 miles of this alternative alignment where no official NWI data currently exist. Aerial photographs from 2005 of the 25-mile section where no wetland data exist were reviewed. In concurrence with MATL, several small wetland areas were observed on the photographs, but exact acreage quantification was not possible. No single large wetland or a concentration of wetlands that could not be spanned by 500- to 800-foot span lengths was noted.

Most of the impacted wetland acres (58 acres or 93 percent) are palustrine emergent or palustrine unconsolidated wetlands with about 3.5 acres of riverine wetlands impacted at the Teton, Dry Fork of the Marias, and the Marias River crossings. This Alternative 3 alignment is similar to Alternative 2 with approximately 75 percent of the potentially impacted wetlands located north of Cut Bank (Milk River Pothole area) and east and south of Conrad (Teton River area). The Alternative 3 alignment would also cross approximately 0.8 acre of the seasonally flooded lacustrine area near milepost 5 by Black Horse Lake. MATL would enact the same procedures for any structures placed in this area, as described for Alternative 2 above. The remaining wetlands are scattered along the alignment, including near the Benton Lake NWR area. Overall with successful implementation of the MATL proposed environmental protection measures and the required DEQ environmental specifications, impacts to wetlands under Alternative 3 would be minor and primarily of short duration.

3.6.3.4 Alternative 4 – Agency Alternative

Alternative 4 is 139.6 miles in length, which is about 9.7 miles longer than the proposed Project (139.6 miles compared to 129.9 miles). This alternative is composed of 60.9 miles of the Alternative 2 alignment and 78.7 miles of agency-developed alignments that branch off the Alternative 2 alignment. The 78.7 miles of agency alignments were developed to address identified local scoping issues and concerns, but were not specifically developed to mitigate any potential impacts to wetland resources. The wetland types impacted by this alternative are similar to those under the Alternative 2 and Alternative 3. However, the area of potentially impacted wetlands is greater for Alternative 4, primarily due to its greater length. The wetland types impacted under this alternative are shown in **Table 3.6-5**.

In total approximately 76.4 acres of wetlands have been mapped within the 500-foot Alternative 4 alignment, compared to 67.7 acres along the Alternative 2 alignment. The total wetland area does not include any wetlands visually identified by MATL (MATL 2006b) during the baseline field work in the approximately 25 miles of this alternative alignment where no official NWI data currently exist. Aerial photographs from 2005 of the 25-mile section where no wetland data exist were reviewed. In concurrence with

MATL, several small wetland areas were observed on the photographs, but exact acreage quantification was not possible. No single large wetland or a concentration of wetlands that could not be spanned by 500- to 800-foot span lengths was noted.

TABLE 3.6-5
WETLANDS POTENTIALLY AFFECTED BY ALTERNATIVE 4

NWI Wetland Class	Acres within 500-foot alignment
Palustrine Emergent (PEM)	69.8
Palustrine Unconsolidated Shore/Bottom/Aquatic Bed (PUS, PUB, & PAB)	4.2
Lacustrine (L2)	0.0
Riverine (R3)	2.4
Total	76.4

Alternative 4 traverses around the southern and western sides of Benton Lake NWR area and would potentially impact fewer acres of wetlands from Great Falls to milepost 27.3, compared to Alternative 2, for this area. Several smaller palustrine and lacustrine wetlands, directly north of Great Falls (Black Horse Lake area) and along the western side of Benton Lake NWR, would be avoided by the Alternative 4 alignment.

The Alternative 4 alignment would cross Lake Creek, Teton River, Dry Fork Marias River, Marias River, and several major coulees (South Pondera, Pondera, Favot, and Big Flat. The higher proportion of coulees and unfarmed drainages that were used by Alternative 4 in order to avoid farmed land is a primary reason for the increased number of wetlands crossed by the Alternative 4 alignment compared to alternatives 2 and 3. The Alternative 4 alignment east of Conrad crosses slightly larger and more defined drainages due to its more eastern location. Drainages generally flow west to east in this area and tend to have more defined channels as they flow toward the Missouri River.

Most of the potentially impacted wetland acres (74 acres or 97 percent) are palustrine emergent or palustrine unconsolidated wetlands with only about 2.4 acres of riverine wetlands impacted at the Teton, Dry Fork of the Marias, and Marias River crossings. Alternative 4 would avoid the small seasonally flooded lacustrine area at Black Horse Lake. Overall, with successful implementation of the MATL proposed environmental protection measures and the required DEQ environmental specifications, impacts to wetlands under Alternative 4 would be minor and primarily of short duration.

Potential Mitigation and Best Management Practices

Mitigation measures have been developed by MATL to help avoid and minimize impacts to wetlands from the proposed Project and alternatives. MATL's mitigation measures are not necessarily exclusive for wetland and stream crossings and may

provide concurrent benefits for impacts to soils and other biological resources. MATL's stated measures to mitigate potential impacts to wetlands include:

1) Avoiding existing wetlands and drainage channels to the maximum extent possible by completely spanning all wetlands, prairie pothole wetlands, riparian vegetation, coulees, Marias River, and Teton River.
2) Avoiding placement of transmission line structures (poles) in riparian vegetation areas.
3) Implementing erosion and sediment control best management practices during construction, as required by the State of Montana.
4) Completing timely seeding of all areas affected by project activities with native and/or non-invasive seed mixes to prevent soil erosion.

Agency-developed mitigation measures, applicable to wetlands, would be attached to DEQ's Environmental Specifications (**Appendix F**). One agency mitigation measure for wetlands would be for MATL to delineate all wetlands and waters of the U.S. along any selected alignment that traverses Teton County where no official NWI data currently exist. Delineating the wetlands would assist in minimizing potential alterations to the hydrology and plant communities during construction and allow placement of mitigation measures at the appropriate locations. Additional mitigation measures specific to wetlands may be required by the U.S. Army Corps of Engineers under their Nationwide # 12 Permit (Utilities Line Activities) which would apply to any construction, maintenance, and repair of utility lines and associated facilities in wetlands and waters of the U.S. The additional wetland mitigation measures would help ensure no net loss of wetland acreage and a consistent approach for mitigating potential impacts to wetlands associated with the MATL transmission line project.

3.6.4 Floodplain or Wetland Assessment

This assessment of potential floodplain or wetland impacts of the proposed Project is included pursuant to DOE requirements in 10 CFR 1022.

3.6.4.1 Project Description

The proposed Project is described in Section 2.3. Some transmission line support structures would be located in floodplains. The "high hazard area" of a floodplain is defined in 10 CFR 1022.4 as "those portions of riverine and coastal floodplains nearest the source of flooding that are frequently flooded and where the likelihood of flood losses and adverse impacts on the natural and beneficial values served by floodplains is greatest." Structures would not be constructed below the normal high-water mark of surface water bodies, and high hazard areas of floodplains would be avoided.

3.6.4.2 Floodplain or Wetland Impacts

Surface water and wetlands resources are described in Section 3.5.2 and 3.6.2, respectively. Construction of structures would affect floodplains. Construction could result in erosion and sedimentation in surface water, especially if flooding occurs during construction. Construction would not occur in flowing or standing water. Structures and access roads would not be constructed in obvious flood channels. Floodplain storage volumes would not be affected, and flood stages would not increase measurably, due to the presence of structures. Little or no riparian vegetation would be disturbed during construction or operation of the transmission line. All wetlands would be spanned.

3.6.4.3 Alternatives

All of the alternatives considered would cross floodplains. Few structures would be placed directly in floodplains, so none of the alternatives is expected to have significant adverse impacts on floodplain function. No adverse impacts from flooding are expected to adjacent or downstream property owners in these sparsely populated areas.

3.7 Vegetation

3.7.1 Analysis Methods

Analysis Area

Quantitative analysis of acres for various vegetation communities in each alignment was derived from orthophotograph interpretation of cover types along the proposed alternatives. Assumptions associated with GIS derived acreages of vegetation resources include:

- GIS data are based on 2005 orthophotographs (Montana NRIS 2006a) that were hand digitized in 2006. Some misidentification may have occurred due to orthophotograph resolution, and changes in vegetation type and condition since the photographs were taken.
- The analysis area consists of 250 feet on either side of each alignment centerline.
- Except as noted, all newly constructed access roads would be located within the 500-foot alignments.

All common and scientific plant names are based on the USDA PLANTS Database (NRCS 2006b).

Information Sources

Resources addressed in this section include the various vegetation community types, special status plant species, and noxious weeds. Community type and distribution data are based on field evaluations conducted in 2005 by MATL. Additional data sources include the NHP (2006b) and the Montana NRIS. Montana Gap Analysis Program (GAP) (Redmond and others 1998) data were reviewed and determined to be inappropriate for vegetation classification at this scale and inaccurate due to land cover changes since publication of the data set.

3.7.2 Affected Environment

This section addresses the environmental baseline conditions for vegetation resources in the Project area. The large spatial extent of the Project area encompasses many different vegetation types and communities. Vegetation communities in Montana are generally determined by topography, soil type, and climate (NHP 2002). In general, dominant vegetative communities include irrigated and non-irrigated farmland, fallow crops, CRP areas, native shrub and grassland communities, and riparian and wetland communities.

Three dominant Level IV ecoregions, described by Woods and others (2002), are found within the Northwestern Glaciated Plains Ecoregion. The Northwest Glaciated Plains Ecoregion includes the North Central Brown Glaciated Plains, Foothill Grasslands, and Milk River Pothole Uplands Level IV regions. The Northwestern Glaciated Plains are characterized as the transition zone between the more level, moister Northern Glaciated Plains to the east and the dryer, irregular Northwestern Great Plains to the west and southwest. The Northwestern Glaciated Plains are well suited for agriculture with much of the area having been converted to farmland. **Table 3.7-1** presents the environmental attributes of the three Level IV Ecoregions found in the Project area.

TABLE 3.7-1
PROJECT AREA LEVEL IV ECOREGIONS

Level IV Ecoregion	Elevation (feet)	Precipitation Mean Annual (inches)	Potential Natural Vegetation
North Central Brown Glaciated Plains	2,500 to 4,200	11 to 15	Grama- needlegrass-wheatgrass
Foothill Grasslands	3,500 to 5,500	11 to 22	Wheatgrass-fescue
Milk River Pothole Uplands	3,700 to 4,350	11 to 14	Grama- needlegrass-wheatgrass

Notes:
Sources: Woods and others (2002) and Kuchler (1964).

Potential natural vegetation for the Project area is dominated by the grama-needlegrass-wheatgrass and wheatgrass-fescue community types (Woods and others 2002). Mixed grass prairie in these areas is typified by open (40 to 60 percent canopy cover) graminoid dominated vegetation. Dominant native graminoids throughout the Project area include bluebunch wheatgrass (*Pseudoroegneria spicata*) and blue grama (*Bouteloua gracilis*) (**Table 3.7-2**). Bluebunch wheatgrass often shares dominance with needle-and-thread (*Hesperostipa comata*); blue grama is usually present in differing amounts depending on past grazing history. Western wheatgrass (*Pascopyrum smithii*) is also important in localized areas. Shrub cover is typically less than 10 percent in these communities with dominant species including broom snakeweed (*Gutierrezia sarothrae*), plains pricklypear (*Opuntia polyacantha*), and occasionally rubber rabbitbrush (*Ericameria nauseosa*)(NHP 2006a). Saline areas support alkali grass (*Puccinellia* spp.), wild barley (*Hordeum* spp.), greasewood (*Sarcobatus vermiculatus*), saltwort (*Salicornia rubra*), and Pursh seepweed (*Suaeda calceoliformis*)(MATL 2006b).

TABLE 3.7-2
DOMINANT PLANT SPECIES COMBINATIONS IN THE PROJECT AREA

Common Name	Scientific Name	Location
Short- and Mid-grass Prairie		
Blue Grama	*Bouteloua gracilis*	Breaks above Marias and Teton rivers
Thickspike Wheatgrass	*Elymus lanceolatus*	North of Cut Bank, some CRP
Needle-and-thread	*Hesperostipa comata*	Breaks above Marias and Teton rivers, coulees
Northern Porcupine Grass	*Hesperostipa curtiseta*	Breaks above Marias and Teton rivers
Green Needlegrass	*Nassella viridula*	Southern, below 230-kV switch yard
Western Wheatgrass	*Pascopyrum smithii*	Breaks above Marias and Teton rivers, coulees
Foxtail Barley	*Hordeum jubatum*	Saline soil patches
Badlands		
Silver Sagebrush	*Artemisia cana*	Kevin Rim, Dry Fork Marias River
Thickspike Wheatgrass	*Elymus lanceolatus*	North of Cut Bank
Creeping Juniper	*Juniperus horizontalis*	Trunk Butte, Kevin Rim
Shrublands		
Silver Sagebrush	*Artemisia cana*	Marias and Teton rivers; Kevin Rim
Blue Grama	*Bouteloua gracilis*	Missouri Plateau breaks/Rim north of Great Falls; Marias and Teton rivers
Needle-and-thread	*Hesperostipa comata*	Missouri Plateau breaks/Rim north of Great Falls; Marias and Teton rivers
Western Wheatgrass	*Pascopyrum smithii*	Breaks above Marias and Teton rivers, coulees
Silver Buffaloberry	*Sheperdia argentea*	Red River; coulees north of Cut Bank and central area
Riparian		
Boxelder	*Acer negundo*	Kevin Rim; coulees
Silver Sagebrush	*Artemisia cana*	Marias, Teton, Dry Fork Marias rivers
Sedge	*Carex spp.*	Marias and Teton rivers, coulees
Spikerush	*Eleocharis spp.*	Teton River, coulees
Western Wheatgrass	*Pascopyrum smithii*	Marias and Teton rivers, coulees
Plains Cottonwood	*Populus deltoides*	Marias and Teton rivers
Narrowleaf Cottonwood	*Populus angustifolia*	Marias and Teton rivers
Chokecherry	*Prunus virginiana*	Marias and Teton rivers, coulees
Wild Currant	*Ribes spp.*	Marias and Teton rivers, coulees
Woods' Rose	*Rosa woodsii*	Marias and Teton rivers, coulees
Peachleaf Willow	*Salix amygdaloides*	Dry Fork Marias River, coulees
Willow	*Salix spp.*	Rivers, coulees
Silver Buffaloberry	*Sheperdia argentea*	coulees
Western Snowberry	*Symphoricarpos occidentalis*	Rivers, draws, coulees

Notes:
Table is not intended to be a comprehensive list, rather a characterization of dominant species in the Project Area.
Source: MATL 2006b.

Shrublands are comparatively rare and occupy a very small portion of the Project area. These communities tend to be small and isolated, and are generally located in badlands, upland draws, and terraces along riparian zones. The primary upland shrub community throughout the northern portion of the Project area is silver buffaloberry, which occurs as small, isolated patches in protected draws, drainage heads, and swale bottoms. Silver sagebrush occurs in relatively mesic sites, and is generally found as stringers on the upper floodplain terraces of the larger creeks and rivers in the area, particularly the Dry Fork Marias River (MATL 2006b) (**Table 3.7-2**).

Historically drought, fire, and periodic grazing were the dominant disturbance factors in this area (USDA Forest Service 1994). Conversion of native grasslands to agricultural uses has yielded highly fragmented native communities and altered historic disturbances. Other disturbances such as livestock grazing and rangeland managed under the CRP have produced native communities in a variety of ecological and successional conditions, in turn providing opportunity for the introduction of noxious weed species. CRP rangelands are dominated by wheatgrass (*Agropyron* spp.), alfalfa (*Medicago* spp.), clover (*Trifolium pratense*), and annual weeds for example, yellow salsify (*Tragopogon dubius*)(MATL 2006b).

3.7.2.1 Riparian Vegetation

Riparian vegetation plays an important role in many physical processes within riparian areas. Riparian vegetation dissipates energy and filters and retains sediment during peak flow periods. The vegetation also immobilizes, stores and transforms chemical inputs such as nitrogen. Riparian communities also stabilize streambanks and moderate instream conditions such as temperature, to provide valuable fish and wildlife habitat (Schultz and others 1994). Data characterizing riparian vegetation in the Project area rely predominately on MATL field investigations and were taken from the MATL MFSA application (MATL 2006b) unless otherwise noted.

Riparian communities within the Project area are generally restricted to the Marias River, Teton River, coulees, and along small ephemeral tributaries of the Marias and Teton rivers. The character of these riparian zones is directly related to soil moisture as determined by drainage basin size and dimensions, the annual flooding regime, and the proximity to the head of the drainage. These drainages experience large seasonal and annual hydrologic variability, resulting in relatively undeveloped floodplains in most of the Project area. Riparian habitats are better developed and more complex along the Marias River and Teton River. The coulees and smaller streams are relatively xeric and do not support substantial riparian vegetation. Generally, riparian zones within the Project area consist of herbaceous (*Carex* spp.) and willow communities in the wettest zones, which transition to western snowberry, Woods' rose, and silver sagebrush-western wheatgrass communities on the upper floodplain terraces. The Marias River and Teton River support narrow, discontinuous patches of cottonwood stands

interspersed by broader terraces supporting silver sagebrush-western wheatgrass. On shaded slopes of valleys and river terraces, aspen, willow, cottonwood, and box-elder occur (**Table 3.7-2**).

The Marias and Teton rivers support the most important forested riparian habitats in the Project area. Riparian habitats along the Marias and Teton rivers include oxbow marshes and shrub-dominated terraces. The defining feature, however, is the cottonwood stands that line the rivers in places. Despite the fact that these riparian forests have been reduced and fragmented by conversion of the floodplain to irrigated agriculture and pasture (Jones 2003), they remain the only important native forested habitat within the Project area. The width of the cottonwood stands varies between 0 and 500 feet.

In places, mature cottonwood trees dominate the Marias River and Teton River riparian communities. Mesic floodplains support a diverse understory that may include box elder, peachleaf willow, yellow willow, and chokecherry. Xeric floodplain terraces support a less diverse shrub layer dominated by western snowberry and Woods' rose, or lack a shrub component altogether. The native grasses that once characterized these stands have been largely replaced by exotic species (for example, *Poa pratensis*). Grazing has greatly altered the shrub composition in these communities (Jones 2003). River terraces that are no longer subjected to seasonal flooding or are not farmed often support a silver sagebrush-western wheatgrass community. Lack of flood disturbance has changed the ecological dynamics by suppressing cottonwood regeneration and facilitating the colonization of invasive species such as Russian olive (*Elaeagnus angustifolia*).

Noxious Weeds

Invasive plants are often early successional, pioneer species that colonize quickly following disturbance. They typically produce large quantities of seed that germinate quickly and are highly competitive. Both native and nonnative invasive plants are found throughout Montana. Noxious weeds are defined as "any exotic plant species established or that may be introduced in the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities" (7-22-2101, MCA). Furthermore, noxious weeds are highly aggressive and lack native insects and diseases that aid in limiting the spread and distribution of the species. Some species can establish without soil disturbance and displace healthy native communities, resulting in noxious weed monocultures. Localized areas of spotted knapweed were found in the floodplain of the Marias River near Sullivan Bridge (Glacier County) and in the floodplain of the Teton River near Kerr Bridge (Teton County). Leafy spurge is also broadly distributed along the Marias River. Two additional noxious weeds, Canada thistle and field bindweed are located in the Project area. Canada thistle was found in the terraces above the Dry Fork Marias River

(MATL 2006b). Montana Noxious Weed Survey and Mapping project data, hosted on NRIS, indicate populations of Dalmation toadflax near Conrad, Russian knapweed along the Marias and Teton river corridors, and leafy spurge scattered throughout the Project area (Montana Noxious Weed Survey and Mapping 1998). **Table 3.7-3** lists several other noxious weed species located within counties in the Project area.

TABLE 3.7-3
CATEGORY ONE AND TWO NOXIOUS WEEDS FOUND IN COUNTIES WITHIN THE PROJECT AREA

Common Name	Scientific Name	Habitat
Category 1- Widespread Noxious Weeds		
Canada thistle	*Cirsium arvense*	Reported in all project area counties.
Common tansy	*Tanacetum vulgare*	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Toole and Pondera Counties.
Dalmatian toadflax	*Linaria dalmatica*	Reported in all project area counties.
Diffuse Knapweed	*Centaurea diffusa*	Reported in all project area counties.
Field bindweed	*Convolvulus arvensis*	Reported in all project area counties.
Houndstongue	*Cynoglossum officinale*	Reported in all project area counties.
Leafy spurge	*Euphorbia esula*	Reported in all project area counties.
Ox-eye daisy	*Chrysanthemum leucanthemum*	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Pondera and Teton Counties.
Russian knapweed	*Acroptilon repens*	Reported in all project area counties.
Spotted knapweed	*Centaurea stoebe*	Reported in all project area counties.
St. Johnswort	*Hypericum perforatum*	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Teton County.
Sulfur cinquefoil	*Potentilla recta*	Reported in Glacier, Pondera, Cascade and Chouteau Counties. Historically present in Toole County.
Whitetop or hoary cress	*Cardaria draba*	Reported in all project area counties except Glacier County (historically present).
Yellow toadflax	*Linaria vulgaris*	Reported in all project area counties.
Category 2- Established New Invaders		
Dyers woad	*Isatis tinctoria*	Historically present in Pondera and Chouteau Counties, but not currently reported.
Meadow hawkweed complex	*Hieracium pratense*, *H. floribundum*, *H. piloselloides*	Historically present in Pondera and Chouteau Counties.
Perennial pepperweed	*Lepidium latifolium*	Reported in Toole, Pondera, Teton, Cascade and Chouteau Counties.
Purple loosestrife or Lythrum	*Lythrum salicaria*, *L. virgatum*	Reported in Pondera and Cascade Counties. Historically present in Toole County.
Tall buttercup	*Ranunculus acris*	Reported in Glacier County. Historically present in Teton County.
Tamarisk	*Tamarix* spp.	Reported in Cascade and Chouteau Counties. Historically present in Teton County.

Source: MATL 2006b

3.7.3 Environmental Impacts

3.7.3.1 Alternative 1 - No Action

Alternative 1 would not have any effects on vegetation resources (riparian vegetation, species of concern, or weed control) in the analysis area.

3.7.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Rangeland vegetation, such as grassland, improved pasture, seeded grasslands, shrubland, badland, and riparian and wetland areas, would be removed by the construction of access roads and structures and at construction staging areas. Impacts to riparian and wetland areas would be minimal as these areas would only be disturbed when absolutely necessary. Maintenance activities would not likely result in additional ground disturbance. Alternative 4 impacts the greatest amount of rangeland cover types (50.8 miles) and is 9.7 miles longer than Alternative 2. The increased crossing in rangeland cover types would result in more tower structures and access roads, thus increasing rangeland impacts. Disturbance due to maintenance activities would also increase over the life of the Project due to increased structure and road placement in rangeland and vegetation. Linear miles of rangeland cover types affected by alternative are presented in **Table 3.7-4**. Disturbance resulting from staging areas would be similar for all alternatives.

TABLE 3.7-4
NATIVE VEGETATION COVER TYPES
CROSSED BY ALTERNATIVES 2, 3, AND 4

Rangeland Cover Types	Alternative 2		Alternative 3		Alternative 4	
	Miles	Cover Types (percent)	Miles	Cover Types (percent)	Miles	Cover Types (percent)
Grassland/ Shrubland	33.6	25.9	21.6	17.8	49.3	35.2
Riparian	1.9	1.5	1.3	1.1	1.5	1.1
Forest (Cottonwood)	0.0	0.0	0.1	0.1	0.0	0.0
Total	35.5	27.4	23.0	19.0	50.8	36.3
Total Line Length	129.9	--	121.6	--	139.6	--

Notes:
Source: Orthophotographs 2005 (Montana NRIS 2006a) interpretation of land cover in vegetation analysis area, October 2006.
-- Not applicable

H-frame structures would be the preferred structure for areas of native vegetation and would disturb approximately 36 square feet (**Table 2.3-1**) for each structure during construction. These areas would be revegetated, thus only the area occupied by structures would be impacted for the life of the Project. Operational disturbance, the

actual area occupied by the poles, would be approximately 8 square feet per H-frame. Operation disturbance would include H-frame structure base disturbance, other pole base disturbance, and access road disturbance. Construction disturbance would also include assembling structure disturbance, vehicle turn-around areas disturbance, and line pulling and tensioning area disturbance, construction road disturbance, and pole installation disturbance areas. **Table 3.7-5** presents the estimated amount of operational disturbance associated with H-frame structures in native cover types by alternative. MATL (2006b) proposes to avoid riparian disturbance wherever possible; however, structures may be placed in riparian habitat. Therefore, riparian land cover is included in the analysis of ground disturbance resulting from H-frame structures (**Table 3.7-5**). Cottonwood stands were not included in the analysis due to its scarcity (**Table 3.7-4**).

TABLE 3.7-5
ESTIMATED OPERATION DISTURBANCE FOR H-FRAME STRUCTURES BY NATIVE COVER TYPE

Rangeland Cover Types	Alternative 2		Alternative 3		Alternative 4	
	Percent Land Cover	Operational Disturbance (square feet)[a]	Percent Land Cover	Operational Disturbance (square feet)[a]	Percent Land Cover	Operational Disturbance (square feet)[a]
Grassland/ Shrubland	25.9	2,152	17.8	1,384	35.2	3,152
Riparian	1.5	122	1.1	80	1.1	80

Notes:

a Average 660-foot span between structures and assuming 8 square feet of operational disturbance per H-frame.

Access road construction and maintenance would impact native vegetation during line construction and project maintenance. Following construction, many of the road beds would be revegetated and controlled for noxious weeds resulting in resource recovery in 3 to 5 years. During vegetation recovery the likelihood of noxious weed invasion would increase. Implementation of the proposed weed control program would greatly reduce the establishment of weed species.

The major threat to vegetation resources from maintenance activities is the introduction of noxious weed species. Project maintenance would also create minor vegetation disturbance throughout the life of the project. Vegetation would not be greatly affected by occasional trampling from maintenance vehicles; however, the resulting ground disturbance and physical plant damage provide an opportunity for weed invasion. Adherence to the proposed weed management plan would reduce the likelihood of weed establishment as a result of maintenance activities.

Estimates of total ground disturbance from construction activities indicate a total disturbance of approximately 38 acres under Alternative 2 (**Table 2.3-2**), 41 acres under

Alternative 3 (**Table 2.4-1**), and 48 acres under Alternative 4 (**Table 2.5-1**). The total acreage of construction disturbance would be more than operation disturbance. Construction disturbance would be of varying intensity, with most areas, such as staging areas, requiring reseeding. All areas of disturbance would require noxious weed monitoring and possible weed treatment.

Estimates of total ground disturbance from operation activities include approximately 6 acres for Alternative 2, 10 acres for Alternative 3, and 11 acres for Alternative 4. Short- and long-term ground disturbance is greatest under Alternative 4.

Proposed practices to reduce potential vegetation loss and noxious weed invasion would include seeding disturbed areas with appropriate weed-free seed mixes, using weed-free borrow materials, and inventorying and treating noxious weeds according to the Noxious Weed and Invasive Plant Control Plan (MATL 2006b). The combination of the proposed revegetation and weed control measures along with follow-up monitoring by DEQ would reduce the potential for native species displacement and noxious weed spread during project construction and long-term maintenance.

Riparian Vegetation

DEQ would apply its environmental specifications to the project. The specifications include the requirement that MATL avoid placing poles or roads in designated 100-year flood plains.

Weed Control

Ground disturbance and increased travel during line construction and maintenance could increase the risk of noxious weed spread. Weed infestations are actively controlled in cropland and along country roads and other rights of way; however, resources are often limited when treating weeds in native vegetation. The weed control area for this project is defined by MATL as:

> "…all lands disturbed by construction activities plus a 30-foot buffer area around disturbances. Newly constructed roadways, where needed, are expected to be about 14 feet wide with varying widths of cut and fill slopes. To buffer all disturbed areas it is estimated that the 'weed control area' will consist of an approximately 100-foot corridor along all roadways and tensioning sites that are used for construction, and all lands within 50 feet of each new transmission line structure." (MATL 2006b)

The proposed weed control program is comprehensive. It incorporates a baseline inventory and marking of existing noxious weed populations, preventative measures (that is, washing vehicles, flagging weed populations to be avoided, and seeding following disturbance), and an integrated control program involving spraying target species in coordination with the BLM, state weed coordinator, and county weed boards and groups. Mitigation practices such as washing vehicles and equipment would occur throughout construction and continue during future line maintenance activities. Furthermore, MATL would report annually to federal, state, and county personnel on the condition and progress of this effort. The MATL integrated weed control plan would reduce the threat of noxious weed invasion following ground disturbance resulting from project construction and long-term maintenance. This weed control program would be implemented for the life of the project or as required by designated federal, state, and county personnel to ensure long-term noxious/invasive plan control measures are met in the weed control area (MATL 2006b).

In addition to noxious weed invasion, unlisted weed species are likely to increase due to ground disturbance and increased traffic and activity in the study area. It is assumed MATL would treat these species in conjunction with noxious weeds. On farmland, it is assumed landowners would manage these species with the same methods currently in use.

3.8 Wildlife

3.8.1 Analysis Methods

This section discusses the occurrence and distribution of vertebrates (mammals, birds, reptiles, and amphibians) within the Project area.

Analysis Area

The analysis area includes wildlife habitat potentially impacted by the implementation of the proposed alternatives. This area was defined as one mile on either side of the proposed and alternative transmission line alignments. Figures showing the alignments are located in Chapter 2.

Information Sources

Information on the distribution of wildlife in the Project area was obtained from a variety of sources, including: literature review, reports from the NHP and FWP, technical reports, peer-reviewed journal articles, and field investigations conducted during May, June, and August 2005 and April and May 2006. Field investigations were conducted to evaluate biological resources in the vicinity of the proposed transmission line alignments. The potential for occurrence of wildlife species not observed during field investigations was assessed based upon evaluation of species distribution and habitat use and information from previous research studies and biological reports (MATL 2006b).

Threatened, endangered, candidate, and sensitive species found within the Project area are discussed in Section 3.10.

3.8.2 Affected Environment

The Project area encompasses the following Level IV ecoregions of Montana including: the North Central Brown Glaciated Plains, the Foothill Grassland, and the Milk River Pothole Upland (Woods and others 2002). Within the Project area, human development and conversion to agricultural cropland have fragmented the native vegetation communities and reduced the quality of these areas as habitat for grassland species**.** Areas such as Benton Lake NWR, WPAs, CRP lands, river corridors, and the Kevin Rim are important wildlife habitats within the Project area. The five WPAs provide habitat for wildlife, especially waterfowl (**Figure 3.6-1**). CRP lands, which comprise approximately 17.7 percent of the Project area, also provide valuable cover and forage for various species of wildlife.

The Marias and Teton rivers represent the most important fisheries in the Project area, and the associated cottonwood stands are the only sizeable woodlands in the area. The extent of a shrub-steppe community (silver sagebrush-western wheatgrass) is limited to the Kevin Rim in the northeast corner of the Project area and lands southeast of Shelby north of the Marias River.

A list of wildlife species observed during field investigations is presented in **Table 3.8-1**. This table is not intended to be an exhaustive list of every species that occurs in the area, but rather to provide insight into current habitat conditions and general taxonomic groups that occur within the Project area.

TABLE 3.8-1
SPECIES OBSERVED IN THE PROJECT AREA DURING FIELD INVESTIGATIONS

Common Name	Scientific Name	Location
Birds		
Golden eagle	*Aquila chrysaetos*	West of Benton Lake NWR
Northern harrier	*Circus cyaneus*	West of Benton Lake NWR
Swainson's hawk	*Buteo swainsoni*	West of Benton Lake NWR; Bullhead Road; Kevin Rim
Red-tailed hawk	*Buteo jamaicensis*	West of Benton Lake NWR; Bullhead Road; north of Teton River
Ring-necked pheasant	*Phasianus colchicus*	McLean State Game Preserve; Bullhead Road
Sharp-tailed grouse	*Tympanuchus phasianellus*	West of Benton Lake NWR; Marias River; north of Shelby
Horned lark	*Eremophila alpestris*	North of Marias River
Meadow lark	*Sturnella neglecta*	Throughout
Common snipe	*Gallinago gallinago*	McLean State Game Preserve
Long-billed curlew	*Numenius americanus*	Throughout
Northern shoveler	*Anas clypeata*	North of Cut Bank
Blue-winged teal	*Anas discors*	North of Cut Bank
Mallard	*Anas platyrhynchos*	North of Cut Bank
Gray (Hungarian) partridge	*Perdix perdix*	Kevin Rim; McLean State Game Preserve
Mammals		
Coyote	*Canis latrans*	South of Cut Bank
American pronghorn	*Antilocapra americana*	Throughout
White-tailed jackrabbit	*Lepus townsendii*	Kevin Rim
Red fox	*Vulpes vulpes*	Bullhead Road
Mountain cottontail	*Sylvilagus nutalli*	Kevin Rim
Mule deer	*Odocoileus hemionus*	North of Teton River

Notes:
Source: MATL 2006b

3.8.2.1 Mammals

Mammal species found in the grasslands within the Project area are numerous and include mule deer, American pronghorn, badger (*Taxidea taxus*), Richardson's ground squirrel (*Spermophilus richardsonii)*, coyote, mountain cottontail and white-tailed jackrabbit (*Lepus townsendii*), and a variety of small rodents. These species are relatively common in grassland and sagebrush steppe habitats in northcentral Montana.

Badgers occur at low densities in grasslands throughout the Project area. Richardson's ground squirrel occurs in relatively low to moderate densities (Olson 2005a) within the Project area, including several active ground squirrel burrows in the Kevin Rim area (Zelenak 1996). Black-tailed prairie dogs (*Cynomys ludovicianus*) also occur in the Project area east of Interstate 15 and are further discussed in Section 3.10. Riparian habitats along the Marias River and Teton River support additional mammal species, including raccoons (*Procyon lotor*), red fox, and a variety of small rodents.

Ungulates

Mule deer occur in the Project area south of the Marias River in low to moderate densities along coulees and draws and irrigated lands east of Conrad. **Figures 3.8-1**, **3.8-2**, and **3.8-3** illustrate the winter distribution of mule deer within or adjacent to the Project area. The NHP Animal Field Guide indicates that white-tailed deer (*Odocoileus virginianus*) are generally restricted to the southern portion of the Project area, not reaching as far north as the Marias River (NHP 2004). However, landowners along the Marias River reported observing white-tailed deer in this area. The NHP Animal Field Guide reports that within the southern portion of the Project area, white-tailed deer stay close to riparian habitats along the Teton River and its tributaries. Data indicate that white-tailed deer do not have winter ranges within the Project area; however, the species' range east of the continental divide varies greatly from year to year depending on climatic conditions (Montana NRIS 2005).

American pronghorn occur in low to moderate densities throughout the central and southern portions of the Project area. Pronghorn were observed in grasslands, sagebrush steppe, and croplands during field investigations. NHP data indicate that pronghorn do not have a winter distribution within the Project area (Montana NRIS 2005); however, pronghorn populations tend to fluctuate with environmental conditions. NHP and FWP data indicate that elk (*Cervus elaphus*) do not generally occur within the Project area. The closest elk population is northeast of Shelby, outside the Project area, in the Sweetgrass Hills.

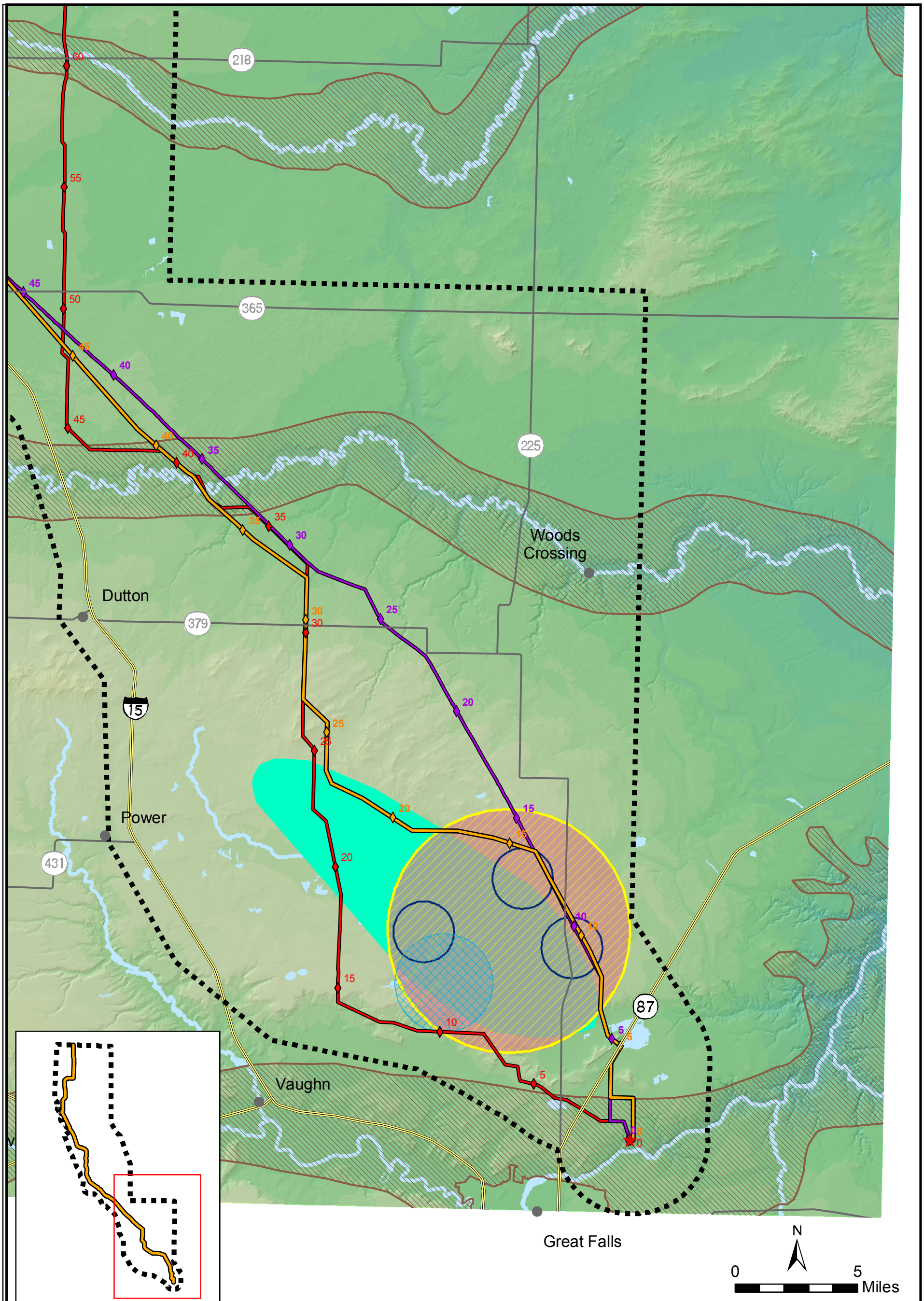


FIGURE 3.8-1
PROPOSED MATL POWERLINE
MULE DEER WINTER RANGE AND
SPECIES OF SPECIAL CONCERN
SOUTH

LEGEND

- MULE DEER WINTER RANGE (MTFWP)
- BLACK-CROWNED NIGHT-HERON (Nycticorax nycticorax)
- BLACK-NECKED STILT (Himantopus mexicanus)
- BURROWING OWL (Athene cunicularia)
- FERRUGINOUS HAWK (Buteo regalis)
- PEREGRINE FALCON (Falco peregrinus)
- SHARPTAIL GROUSE LEKS PROTECTION BUFFER AREA
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-8-1-MuleDeerWinterRng-TnESpp-South.mxd

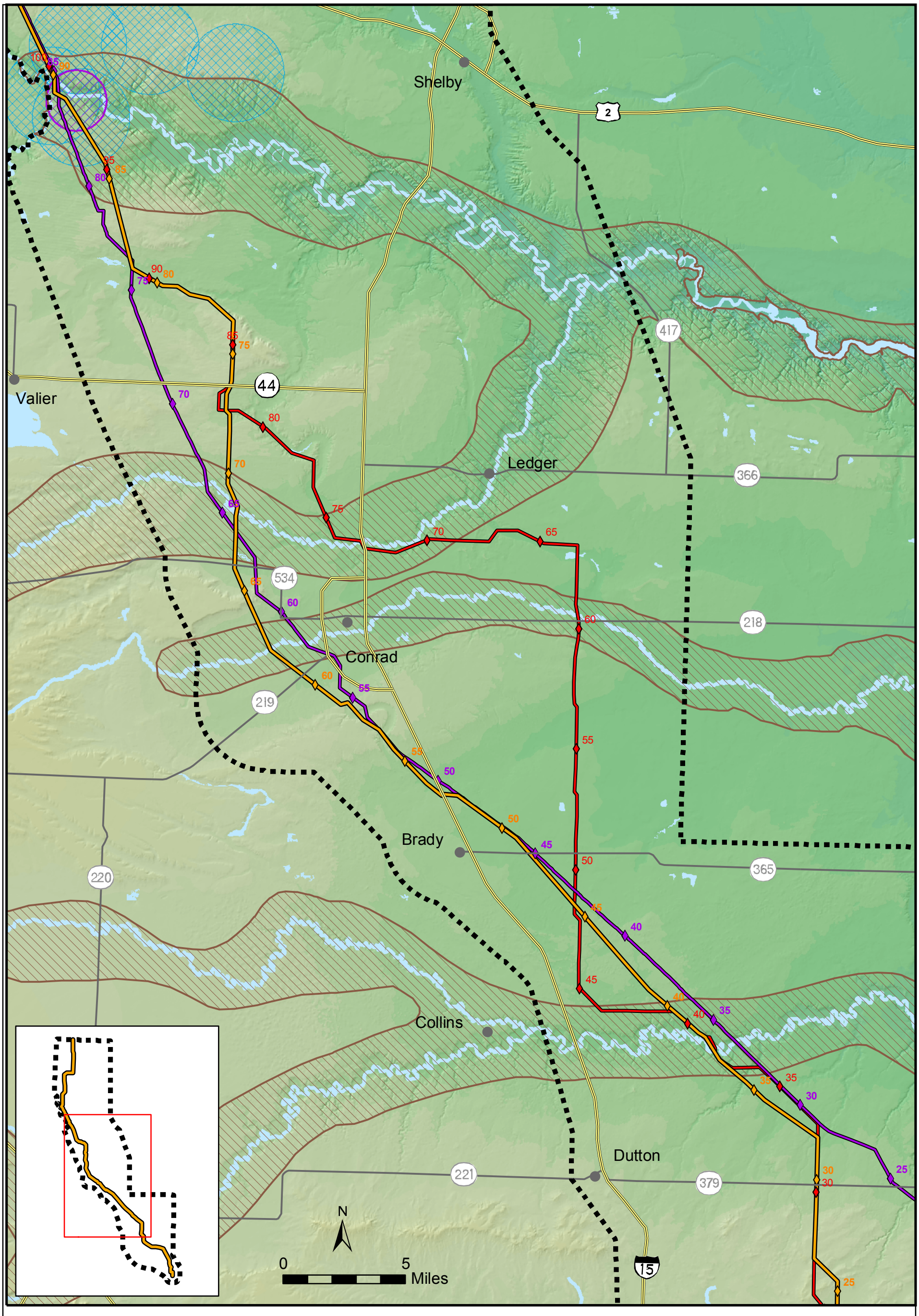


FIGURE 3.8-2
PROPOSED MATL POWERLINE
MULE DEER WINTER RANGE AND
SPECIES OF SPECIAL CONCERN
MIDDLE

LEGEND

- MULE DEER WINTER RANGE (MTFWP)
- BLACK-CROWNED NIGHT-HERON (Nycticorax nycticorax)
- BLACK-NECKED STILT (Himantopus mexicanus)
- BURROWING OWL (Athene cunicularia)
- FERRUGINOUS HAWK (Buteo regalis)
- PEREGRINE FALCON (Falco peregrinus)
- SHARPTAIL GROUSE LEKS PROTECTION BUFFER AREA
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-8-2-MuleDeerWinterRng-Middle.mxd

N

0 5 Miles

Sweetgrass

Sunburst

Kevin

Santa Rita

Cut Bank

Ethridge

Shelby

Valier

214

213

552

215

15

2

358

44

120 135 125 115 130 120 110 125 115 105 110 120 105 100 95 100 110 100 95 100 95 90 95 85 80 90 80 75 85 75 70 80

FIGURE 3.8-3
PROPOSED MATL POWERLINE
MULE DEER WINTER RANGE AND SPECIES OF SPECIAL CONCERN
NORTH

LEGEND

- MULE DEER WINTER RANGE (MTFWP)
- BLACK-CROWNED NIGHT-HERON (Nycticorax nycticorax)
- BLACK-NECKED STILT (Himantopus mexicanus)
- BURROWING OWL (Athene cunicularia)
- FERRUGINOUS HAWK (Buteo regalis)
- PEREGRINE FALCON (Falco peregrinus)
- SHARPTAIL GROUSE LEKS PROTECTION BUFFER AREA
- ALT2 - ALIGNMENT
- MILE MARKERS
- ALT3 - ALIGNMENT
- MILE MARKERS
- ALT4 - ALIGNMENT
- MILE MARKERS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY_AREA
- MAJOR_HIGHWAYS
- SECONDARY_ROADS
- RIVERS AND STREAMS

GIS map by Patricia Williams -TTMTI 3-8-3-MuleDeerWinterRng-North.mxd

Bats

The Project area is within the known range of eight species of bats, representing one family and five genera (**Table 3.8-2**). All are insectivorous, preying upon nocturnal insects using highly evolved echolocation and foraging behavior. Bats use grasslands and riparian areas as foraging habitat. Some species are migratory, flying south for the winter (for example, the hoary bat and silver-haired bat), while others flock to local caves or mines for the lengthy winter hibernation (for example, Myotis spp. and the big brown bat). Migratory and wintering habits are poorly understood for many species. Townsend's big-eared bat is classified as a sensitive species by BLM and has a State rank of S2. The NHP did not have element occurrence data for this particular species of concern within the Project area.

TABLE 3.8-2
BAT SPECIES LIKELY TO OCCUR IN THE PROJECT AREA[a]

Common Name	Scientific Name	Roosting Habitat[b]	Status[c]	Migration[d]
Silver-haired bat	*Lasionycteris noctivagans*	Tree cavities in mature coniferous/mixed forest	C	Migratory
Hoary bat	*Lasiurus cinereus*	Trees	C	Migratory
Big brown bat	*Eptesicus fuscus*	Tree cavities, buildings	C	Not known
Townsend's big-eared bat	*Corynorhinus townsendii*	Caves, abandoned mines	U	Year-round resident
Western small-footed myotis	*Myotis ciliolabrum*	Caves, abandoned mines, rock crevices	U	Not known
Long-eared myotis	*Myotis evotis*	Tree cavities and exfoliating bark in mature conifers	U	Not known
Little brown myotis	*Myotis lucifugus*	Buildings, trees, rock crevices	C	Probably migratory
Long-legged myotis	*Myotis volans*	Trees, buildings, rock crevices	U	Probably migratory

Notes:

Source: MATL 2006b

a Based upon NHP distribution data

b Primary hibernacula and roost habitats used by the species (Bat Conservation International 2002).

c General abundance/distribution in North America: C= common, U=uncommon (Bat Conservation International 2002).

d Current knowledge of migration status (Genter and Jurist 1995).

Due to local geologic and physiographic conditions, few if any caves or abandoned mines occur in the Project area. Rock faces/crevices are found sparingly along parts of the Marias River and along the Kevin Rim. Accordingly, Townsend's big-eared bat and western small-footed myotis are unlikely to roost in the Project area. Furthermore, the Project area is at the distributional limits for these species, and suitable roosting habitat does not exist in the area, thus the potential for occurrence of these species is relatively

low. In addition, the only known location of Townsend's big-eared bat north of the Missouri River in northeastern Montana is in the Little Rocky Mountains approximately 130 miles to the east (Hendricks 2000).

The cottonwood stands along the Marias River and Teton River represent potential roosting habitat for those species that roost in tree cavities and exfoliating bark. These species may occur in low densities given the limited availability of forested habitats within the Project area. Habitat generalists, such as the big brown bat, little brown myotis or the long-legged myotis, are likely to be the most abundant bat species in the area given their capacity to use both natural and man-made structures for day and night roosts. No roosts or hibernacula are known to occur in the vicinity of the Project area.

3.8.2.2 Birds

The vegetative communities provide habitat for a number of migratory and resident bird species within the Project area. These species can generally be classified as upland game birds, grassland birds, waterfowl and shore birds, and raptors. The Marias River and Teton River cottonwood stands represent the only large tracts of relatively contiguous forests in the Project area and provide potential habitat for bird species that use forested and riparian habitats. The prairie grasslands along the river breaks and coulees provide potential habitat for a number of obligate grassland species. The five WPAs, Benton Lake NWR, and various prairie potholes provide potential habitat for waterfowl and shore birds.

Upland Game Birds

Upland game bird species known to occur in the Project area include: the ring-necked pheasant, the gray (Hungarian) partridge, and the sharp-tailed grouse. Ring-necked pheasant and gray partridge habitat consists of a mosaic of open grasslands, cropland, and brushy cover. Extensive tracts of prairie grassland do not provide good pheasant habitat (Mussehl and Howell 1971). Pheasants occur throughout the Project area, but primarily within the vicinity of waterways.

Although the greater sage grouse (*Centrocercus urophasianus*) is classified as sensitive by the BLM and sharp-tailed grouse is considered uncommon by the State, they are currently considered game species by FWP and are subject to a legal harvest season. Generally, the greater sage grouse is a sagebrush obligate that relies on big sagebrush habitats in all seasons. Due to the low occurrence of big sagebrush habitat (see Section 3.7.2), distribution data indicate that sage grouse do not occur within the Project area. The closest distribution of sage grouse is near Tiber Reservoir along the Marias River, approximately 30 miles east of the study area.

Sharp-tailed grouse inhabit grasslands interspersed with woody draws and shrub coulees. The entire Project area contains potential habitat for sharp-tailed grouse (Montana NRIS 2005). Except for areas close to the Marias River, Teton River, and Benton Lake NWR, the Project area contains lower quality sharp-tailed grouse habitat due to habitat loss and fragmentation associated with agricultural activities. During field investigations a total of seven sharp-tail leks (courtship display areas) were recorded. Three of the leks were observed visually and four leks were only identified by sound. Although FWP did not have specific locations of leks, it identified water crossings, draws, and coulees that are not cultivated as probable locations for leks within the Project area, specifically Benton Lake NWR, Cut Bank Creek breaks (including where the Two Medicine River and Cut Bank Creek come together to form the Marias River), Teton River, east of Dutton along coulees and draws, Big Flat Coulee, the Dry Fork of the Marias River, and the Kevin Rim (Olson 2005a).

Grassland Birds

The intact mid- and shortgrass prairie communities along the Marias River, Teton River, and several draws and coulees within the Project area have been subjected to light to moderate grazing intensities and represent relatively high quality wildlife habitat. Several obligate grassland species may potentially occur in the aforementioned areas. FWP identified the following grassland birds as having the potential to occur:

- McCown's longspur (*Calcarius mccownii*);
- Mountain plover (*Charadrius montanus*);
- Sprague's pipit (*Anthus spragueii*);
- Chestnut collared longspur (*Calcarius ornatus*); and
- Baird's sparrow (*Ammodramus bairdii*).

None of the aforementioned species was observed during field investigations. All five of these species are identified by the state as species of concern. Baird's sparrow was identified by the NHP as known to occur within the Project area and is discussed further in Section 3.10. The quality and relative intactness of the grassland prairie habitats declines with distance away from the Marias and Teton rivers due to increasing agricultural land uses.

Waterfowl and Shore Birds

Several waterfowl species are known to occur in the Project area, the majority of which have been observed on Benton Lake NWR (**Figure 3.6-1**). Breeding bird surveys on Benton Lake NWR have documented 20 species of ducks, including 12 species that stay to nest on the refuge (FWS 2000). These species likely use areas adjacent to the refuge for foraging. Birds have been documented to migrate into the refuge from all directions

and no specific migratory pathways or low-level flight feeding pathways have been identified (Johnson 2005). Waterfowl habitat within the Project area includes wetlands, stock ponds, the Marias River, and the Teton River. Wetlands and stock ponds tend to be small and isolated. Since most stock ponds lack emergent and/or wetland vegetation, nesting habitat is limited. Surface waters that possess potential nesting habitat include Benton Lake, Hay Lake, Grassy Lake, five WPAs, and a few of the larger, undisturbed prairie potholes. The Marias and Teton rivers also provide waterfowl habitat, although hydrological changes and channel incision have reduced the availability of quality nesting habitat along both rivers. Riparian communities along ephemeral streams that bisect the Project area do not provide quality waterfowl habitat. Wetlands, stock ponds, Hay Lake, Marias and Teton rivers, and Benton Lake NWR also provide stopover habitat for migrating waterfowl.

Approximately 32 species of shore birds are known to occur in the Project area, primarily on Benton Lake NWR (**Table 3.8-3**). These species nest in native grassland prairie habitats in proximity to mesic grasslands or shallow wetlands. Habitat for these species occurs primarily in the northern and central portions of the Project area where native prairie grasslands are interspersed with small ponds, wetlands, and riparian areas. Habitat for other shore bird species includes the wetlands and stock ponds that are dispersed throughout the Project area. With the exception of Hay Lake, the small size and lack of emergent wetland vegetation in most of the water bodies reduces their quality as shore bird habitat. The Marias and Teton rivers and adjacent areas also represent potential shore bird habitat.

TABLE 3.8-3
WATERFOWL AND SHORE BIRDS SIGHTED ON BENTON LAKE NWR SINCE 1961

Shore birds	Swans, Geese, and Ducks
Black-bellied Plover	Tundra Swan (Whistling Swan)
American Golden Plover (Lesser Gol-Pl.)	Trumpeter Swan
Semi-palmated Plover	Greater White-fronted Goose
Piping Plover	Snow Goose
Killdeer	Ross' Goose
Black-necked Stilt	Canada Goose
American Avocet	Wood Duck
Greater Yellowlegs	Green-winged Teal
Lesser Yellowlegs	American Black Duck
Solitary Sandpiper	Mallard
Willet	Northern Pintail
Spotted Sandpiper	Blue-winged Teal
Upland Sandpiper	Cinnamon Teal
Whimbrel	Northern Shoveler
Long-billed Curlew	Gadwall

TABLE 3.8-3 (Continued) WATERFOWL AND SHORE BIRDS SIGHTED ON BENTON LAKE NWR SINCE 1961	
Shore birds	**Swans, Geese, and Ducks**
Hudsonian Godwit	Eurasian Wigeon
Marbled Godwit	American Wigeon
Ruddy Turnstone	Canvasback
Red Knot	Redhead
Sanderling	Ring-necked Duck
Semipalmated Sandpiper	Greater Scaup
Western Sandpiper	Lesser Scaup
Least Sandpiper	Oldsquaw
Baird's Sandpiper	White-winged Scoter
Pectoral Sandpiper	Common Goldeneye
Dunlin	Barrow's Goldeneye
Stilt Sandpiper	Bufflehead
Short-billed Dowitcher	Hooded Merganser
Long-billed Dowitcher	Common Merganser
Common Snipe	Red-breasted Merganser
Wilson's Phalarope	Ruddy Duck
Red-necked Phalarope	

Note:

Source: MATL 2006b

Raptors

A number of raptor species are known to occur in the Project area and have been observed during breeding bird surveys and field investigations conducted for this project. The Kevin Rim Area of Critical Environmental Concern and the Marias River breaks provide potential habitat for raptors. A list of raptors observed by other researchers along Kevin Rim from 1993-1994 is presented in **Table 3.8-4** (Zelenak 1996).

While these species are present in the Project area during breeding season, potential nesting sites, aside from Kevin Rim and the bluffs around the Marias River, are limited to small shrubs in draws and coulees, riparian cottonwood trees, and ornamental spruce trees near farms or residential areas (Olson 2005a). A historic peregrine falcon eyrie is located where Cut Bank Creek and Two Medicine River flow together to form the Marias River. The eyrie is discussed further in Section 3.10. Intermittent cottonwood stands along the Marias and Teton rivers are used by bald eagles during the winter, and indirect evidence of breeding has been observed in these areas (NHP 2005). Bald eagles and peregrine falcons are often seen in the spring on Benton Lake NWR (FWS 2000).

TABLE 3.8-4
RAPTORS OBSERVED AT THE KEVIN RIM, 1993-1994[a]

Common Name	Scientific Name
Ferruginous hawk	*Buteo regalis*
Prairie falcon	*Falco mexicanus*
American kestrel	*Falco sparverius*
Red-tailed hawk	*Buteo jamaicensis*
Golden eagle	*Aquila chrysaetos*
Swainson's hawk	*Buteo swainsoni*
Great-horned owl	*Bubo virginianus*
Burrowing owl	*Athene cunicularia*
Northern harrier	*Circus cyaneus*
Short-eared owl	*Asio flammeus*

Notes:
Source: MATL 2006b
[a] Source: Zelenak 1996

Potential raptor prey sources include colonial rodents, lagomorphs, waterfowl, young grouse, and carrion. Although prey populations in the Project area have not been assessed, prey densities are generally low (Olson 2005a). Ground squirrels comprised the majority of prey items recorded in ferruginous hawk nests in 1993 and 1994, followed by lagomorphs and birds (Zelenak 1996). A black-tailed prairie dog town is known to exist east of Interstate 15 southeast of Shelby north of the Marias River. Rabbits and hares are common and, while these populations are subject to large annual fluctuations, field investigations indicated that current lagomorph densities are relatively low. The five WPAs provide waterfowl concentration areas, which may serve as raptor prey sources. Carrion is available on ungulate winter ranges where bald eagles and other scavengers are attracted to the area by over-winter mortalities (Olson 2005a). Dead livestock may also provide carrion for scavenging raptors.

Migratory Birds

The Project area contains rolling hills, gentle ridges, and plateaus bisected by small drainages. There are no obvious "funnels," such as prominent ridgelines or mountain gaps that could potentially serve as a large scale or regional migratory pathway. The relatively small ridges within the Project area may serve as local pathways for birds passing through as part of a large, broad front migration. Thousands of tundra swans, and snow and Ross' geese stop at the Benton Lake NWR for a week or more on their migration from their wintering grounds in central California to nesting areas in arctic Alaska and Canada. Twenty species of ducks, including 12 species that stay to nest on the Refuge, also migrate through this area. Aside from Benton Lake NWR, a limited amount of stopover habitat for migrating waterfowl is available within the Project area (Johnson 2005). Riparian habitats can also provide stopover habitat for neotropical

migrants. Examples of neotropical migrant birds include species of plovers, terns, hawks, cranes, warblers, and sparrows.

3.8.2.3 Reptiles and Amphibians

Although fragmented by agricultural cropland, the upland, riparian, and aquatic communities within the Project area may provide habitat for a variety of reptile and amphibian species. Field surveys were not conducted specifically for reptiles and amphibians during the spring and summer 2005; however, species distribution information suggests that 10 reptile and amphibian species are likely to occur in the Project area (FWS 2000). **Table 3.8-5** presents a list of reptiles and amphibians that are likely to occur based upon observations of habitat during field investigations, the Benton Lake NWR wildlife list, previous NHP field studies, and the NHP Animal Field Guide database. The greater short-horned lizard is classified as a sensitive species by BLM and has a State rank of S3. The NHP did not have element occurrence data for this particular species of concern within the Project area. The species listed in **Table 3.8-5** occupy a broad range of habitat types, ranging from ponds to mesic grasslands to xeric uplands, and may occur in appropriate habitats throughout the Project area. No known critical breeding habitats or hibernacula for any reptile or amphibian species occur within the Project area.

3.8.3 Environmental Impacts

For impacts of alternatives, the analysis focuses on assemblages of species that are of concern for reasons of public importance, sensitivity to disturbance, or regulatory issues. Potential impacts were determined mainly based upon the habitat type crossed, and the known (that is, mule deer winter range) or potential (that is, sharp-tailed grouse leks) sensitive wildlife resources within that habitat type. Short-term direct impacts on wildlife resources would include loss of individuals during construction or direct disturbance of species during critical periods in their life cycles. Long-term direct impacts could include alteration and/or fragmentation of habitat, electrocutions, and collisions. Indirect impacts could include fragmentation and disturbance caused by providing access to areas not previously accessible.

3.8.3.1 Alternative 1 – No Action

Under the No Action alternative, the proposed Project would not be implemented. Existing electrical transmission service would be maintained and operated at its current level. Selection of the No Action alternative would not result in any construction or operations of additional transmission lines within the project area; thus, no impacts to wildlife or their habitat would occur.

TABLE 3.8-5
REPTILE AND AMPHIBIAN SPECIES LIKELY TO OCCUR IN THE ANALYSIS AREA[a]
MONTANA ALBERTA TIE LTD., LETHBRIDGE, AB – GREAT FALLS, MT

Common Name	Scientific Name	Habitat
Reptiles		
Short-horned lizard[b]	*Phrynosoma hernandesi*	Sparse, short grass and sagebrush habitats with exposed soils or rock
Racer	*Coluber constrictor*	Open habitats, particularly common in short-grass prairie
Gopher snake	*Pituophis catenifer*	Arid sagebrush and grassland habitats
Western Rattlesnake	*Crotalus viridis*	Open, arid habitats with south-facing slopes and rock outcrops
Common Garter Snake	*Thamnophis sirtalis*	Numerous, prefer moist habitats along streams and ponds
Western Terrestrial Garter Snake	*Thamnophis elegans*	Nearly all habitats
Plains Garter Snake	*Thamnophis radix*	Numerous, including short-grass prairie near water (ponds and coulees)
Amphibians		
Tiger Salamander	*Ambystoma tigrinum*	Breeds in ponds and streams; burrows in prairie or agricultural habitats
Western Chorus Frog	*Pseudacris triseriata triseriata*	Mesic grasslands and marshes near ponds and small lakes
Painted Turtle	*Chrysemys picta*	Lakes, ponds, reservoirs, and sloughs that contain some shallow water areas and a soft bottom; also river backwaters and oxbows with little current

Notes:
Source: MATL 2006b
[a] Source: NHP 2004.
[b] BLM: Sensitive; State rank: S3 - potentially at risk because of limited and/or declining numbers, range, and/or habitat, even though it may be abundant in some areas.

3.8.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Potential adverse impacts on wildlife associated with development of the transmission line can be separated into impacts associated with project construction (short term) and those related to operations and maintenance (long term). The primary potential impacts include direct mortality, habitat loss and fragmentation, disturbance and displacement of individual animals, interference with behavioral activities, and disturbance resulting from increased public access.

Short-term Impacts

Installation and development of the proposed transmission line could cause direct injury or mortality to wildlife species within the Project area. Activities such as site clearing and grading, construction of access roads and support facilities, and off-road

travel during construction could impact wildlife species. Species with higher likelihood to be impacted would include species with limited mobility, species that burrow, or avian species, as nests/burrows could be destroyed during project construction. Construction related disturbances would be short term (6 to 7 months) and confined to the construction site or adjacent storage areas.

Disturbance associated with the installation and development of the transmission line would result in some habitat loss and fragmentation. Project construction activities such as site clearing, site grading, and development of access roads and support facilities would result in a temporary loss of approximately 38 to 48 acres of potential habitat for species within the Project area, depending on the action alternative (MATL 2006b). While a portion of disturbed areas would be reclaimed upon completion of construction activities, permanent habitat loss would occur within the footprints of support structures, and access roads.

Project construction activities would result in disturbance and behavioral interference. Noise, fugitive dust, and activities associated with site clearing and grading, installation of support structures, construction of access roads and support facilities, and associated equipment could disturb and displace wildlife within and adjacent to impact areas. All wildlife species within or near impact areas would be susceptible to disturbance and disturbance would have the greatest impact during migration and breeding seasons. Some species with small home ranges or limited dispersal ability might experience a greater impact. These disturbances would be short term (6 to 7 months) and concentrated within the activity area.

The project construction activities could also result in accidental exposure to contaminants or fire, or increased legal and illegal killing of wildlife. Accidental spills during equipment maintenance or refueling could result in temporary exposure to hazardous contaminants. However, spill prevention plans would be in place and impacted areas would be immediately reclaimed. In addition, exposure would be temporary and restricted to the site of spill; thus, impacts on wildlife would be unlikely. Accidental fires associated with construction and maintenance vehicles would result in the temporary loss of habitat. The increased public access as a result of increased access roads may result in additional legal hunting and poaching. However, this is not expected to increase the level of hunting in the region, only potentially increase access.

Long-term Impacts

Collisions

Direct impacts to avian species could occur as a result of collisions with the proposed transmission line. Operation of the proposed transmission line would have the greatest impact on bird species, due to the collision threat posed by structures, transmission lines, and ground wires. Most other wildlife would not be as impacted, since the

presence of the transmission line, structures, and access roads generally do not present barriers to migration, create excessive noise, or otherwise cause major behavior changes.

A variety of factors influence avian transmission line collisions: configuration and location of transmission lines; specific avian species and their tendency to collide with transmission lines; and the environment, such as weather, topography, and habitat (Avian Power Line Interaction Committee [APLIC] and FWS 2005). Line placement with respect to other structures and topography can influence the collision rate of a transmission line. Collisions usually occur near water or migration corridors and more often during inclement weather. Less agile birds, such as heavy-bodied birds or birds within flocks, are more likely to collide with overhead lines as they lack the ability to quickly negotiate obstacles. Some bird species, usually waterfowl, are prone to collisions with power lines, especially the grounding wires located at the top of the structures (Meyer 1978, James and Haak 1979, Beaulaurier 1981, Beaulaurier et al. 1982, Faanes 1987). Raptor species are less likely to collide with power lines, perhaps due to their excellent eyesight and tendency to not fly at dusk or in low visibility weather conditions (Olendorff et al. 1981). Smaller migratory birds are at risk, but generally not as prone to collision because of their small size, ability to quickly maneuver away from obstacles, and because they often migrate high enough above the ground to avoid transmission lines. Permanent-resident birds that fly in tight flocks, particularly those in and near wetland areas, may be at higher risk than other species.

The action alternatives would implement environmental protection measures that would reduce the potential for avian collisions. Areas with a higher likelihood for avian collisions, such as known flyways, were avoided. In addition, MATL would apply *Suggested Practices for Raptor Protection on Power Lines*, developed by the EEI and APLIC (1996), as appropriate, during design and construction of overhead structures and the substation additions. Avian collisions would be reduced as approved line marking devices would be installed every 50 feet on overhead ground wires within all stream, river and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, Teton River, east of the Benton Lake NWR boundary. Line marking devices would also be placed every 50 feet within a ¼ mile buffer on either side of streams, rivers, or wetlands. Monitoring of potential problem areas after construction would ensure that line markers are functioning properly.

Electrocutions

New transmission lines could potentially impact large birds, such as raptors through electrocution. Electrocution occurs when birds with large wingspans come in contact with either two conductors or a conductor and a grounding device. Two factors influence the potential for avian electrocution: environmental factors such as topography, vegetation, available prey and behavioral factors; and inadequate separation between energized conductors and grounded hardware can provide two

points of contact (APLIC and FWS 2005). MATL transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution. MATL's line would entail "avian- safe" structures, which provide adequate clearance to accommodate a large bird between energized and/or grounded parts. These structures typically have 60 inches of horizontal separation, which can accommodate the wrist-to-wrist distance of an eagle. In addition, vertical separation of at least 48 inches can accommodate the height of an eagle from its feet to the top of its head (APLIC and FWS 2005).

Increased Predation

Impacts as a result of the proposed transmission line could occur from increased raptor predation within the areas surrounding the support structures. In areas where suitable prey habitat is within view, perch sites can provide an energy efficient method for hunting. There is the concern that raptors may use the horizontal cross arms of H-frame transmission structures or single pole structures as perches while scouting for food. Concerns have been raised in some circumstances that the raptors could impact the prairie nesting bird populations due to this. The proposed segments do not go through any major prairie bird nesting area and the segments that have been identified to come within 2 miles of an identified lek would have perch guards installed on support structures in order to deter raptor perching. The 2-mile radius has been identified by FWP biologists (Northrup 2006) and peer reviewed management guidelines (Connely et al. 2000) as an adequate buffer area to ensure that leks would be protected from an increase in raptor predation.

Impacts to Species Assemblages

All action alternatives would cross through similar habitat types with predominantly agricultural lands and scattered grasslands. Impacts to specific assemblages of wildlife species are discussed below. Because only minor differences occur between the action alternatives, impacts are discussed together with differences addressed within the discussion.

Big Game Species

Impacts on big game species would not be expected. Pronghorn and mule deer does with fawns could be displaced by activities during late spring and early summer, but disturbance within a given portion of the line would be temporary and animals could easily use adjacent habitat during disturbance periods. Activities would not disturb wintering animals as the construction activities would occur during the spring and summer months. In the event that activities would occur within the winter months, animals could be disturbed and potentially displaced; however, disturbance within a specific area would be temporary. The proposed and alternative transmission line alignments would cross through mule deer winter range and there would be some permanent loss of habitat as a result of structures and access roads (see **Table 3.8-6).**

This habitat loss would not impact mule deer as this is a minor loss relative to the amount of available habitat within the region.

TABLE 3.8-6
MULE DEER WINTER RANGE IMPACTED BY ALTERNATIVES

Mule Deer Winter Range	Alternative		
	2	3	4
Linear Miles of Mule Deer Winter Range Bisected by Transmission Line	19	20	28

Sharp-tailed Grouse

Potential sharp-tailed grouse habitat along alternative alignments is patchy due to fragmentation by agricultural land. The primary suitable habitat is within the grasslands above the Marias River where two leks were observed and two leks were identified by sound. In total, three leks are within the 2-mile buffer area of the alignments. Although no leks were observed above the Teton River during field investigations, the area where the action alternatives would cross the Teton is potential sharp-tailed grouse habitat.

Impacts on sharp-tailed grouse leks could potentially result from disturbance during the breeding season in April and early May, and to nesting hens during May and early June. However, based on MATL's commitment to curtail construction in any sharp-tailed grouse nesting habitat during the nesting season and to use raptor perch deterrents as appropriate, few impacts to breeding sharp-tailed grouse would occur from implementation of the alternatives. Based on consultation with the FWP (Northrup 2006) and the "Guidelines for management of sage grouse populations and habitats" (Connely at al. 2000), all support structures that would cross within the 2-mile buffer area around the documented leks would be fitted with raptor perch deterrents to reduce predation. For all action alternatives, this would result in approximately 73 support structures (11 miles of transmission line) to be fitted with raptor perch deterrents.

Raptors

Raptor nest surveys conducted along the action alternative alignments showed no raptor nests occurring within one-half mile of the alignments. Nesting habitat occurs in cottonwood groves found along the Marias and Teton rivers and in ornamental trees found near residences, generally greater than 1 mile away from the alignments (Olson 2005b). Impacts to raptors would not be expected and, in the event that a raptor nest was identified during construction activities, MATL would consult with the FWP and take precautions to minimize impacts on nesting raptors**.**

Migratory Birds

Disturbance to migratory birds from noise, vehicles, and human presence during construction would be localized and of short duration. Bird nests could be destroyed if birds are nesting within the disturbed areas. However, many of the birds would re-nest if the first attempt were unsuccessful. No long-term impacts associated with operating and maintaining the line would occur.

Wetlands are an essential component of waterfowl nesting habitat and nesting can occur up to a mile from wetlands (Ringelman 1992). Alternative alignments would not come within 1 mile of any of the five WPAs or any known nesting colonies in the Project study area. Peterson WPA, located in Glacier County northwest of Hay Lake, is approximately 1.7 miles from the Alternative 2 alignment and 1.4 miles from the Alternative 3 alignment. Nesting colonies of white pelicans, great blue herons, or double-crested cormorants are not known to occur within a one-mile buffer area of any of the alternative alignment (Olson 2005b and Johnson 2005). Waterfowl nesting tends to be concentrated within uplands adjacent to wetlands (Ringelman 1992), thus, the construction and operation of the transmission line would not impact waterfowl nesting associated with the WPAs.

The alignments cross land to the east and west of Benton Lake NWR. Alternative 2 and 4 routes are approximately 0.9 mile away from Benton Lake, while Alternative 3 is 0.8 mile away. Birds approach Benton Lake NWR during spring and fall migration.

3.9 Fish

3.9.1 Analysis Methods

The following section discusses the occurrence and distribution of fish species within the Project area. Threatened, endangered, candidate, and sensitive fish species found within the Project area are discussed in Section 3.10.

Analysis Area

The analysis area includes all fish bearing waterways within the MFSA application Project study area (**Figure 1.1-1**). These waterways include: the Missouri River, the Marias River, the Teton River and their associated tributaries, and several man-made stock ponds and reservoirs.

Information Sources

Information on fisheries within the Project area was obtained from a variety of sources, including: literature review, reports from the NHP and FWP, technical reports and peer-reviewed journal articles. Species lists, valuable information, and mapping of sensitive species and important habitats were obtained through meetings and correspondence with personnel from the FWS and FWP (MATL 2006b).

3.9.2 Affected Environment

The Project area crosses one sub-basin of the Milk Watershed and seven sub-basins of the Marias Watershed. The sub-basins crossed are: Upper Missouri-Dearborn Rivers, Sun River, Teton River, Marias River, Two Medicine River, Willow Creek, and Cut Bank Creek sub-basins in the Marias Watershed and the Upper Milk River sub-basin in the Milk Watershed. The only water body identified by the FWP as a blue ribbon or red ribbon river in the Project area is the Missouri River. The river miles at which all three alternatives cross the Marias and Teton rivers are considered Habitat Class 3 and Sport Class 4 fisheries.

Several intermittent gulches, coulees, creeks, and rivers cross the Project area. The majority of the water bodies act as tributaries to three major rivers within the Project area: the Marias River, the Teton River, and the Missouri River. Both the Marias and Teton rivers drain into the Missouri River.

The gulches and coulees within the Project area are typically dry during the summer and do not support fisheries. Lakes are predominately man-made stock ponds, reservoirs, or prairie potholes. Water bodies and lakes that hold water year-round are

generally capable of supporting both warm-water and cold-water fish species. A list of fish species known to occur within the Project area is presented in **Table 3.9-1.**

TABLE 3.9-1
FISH SPECIES KNOWN TO OCCUR WITHIN THE PROJECT AREA

Game Fish		Rough Fish/Non-Game Fish		Forage Fish	
Common Name	*Scientific Name*	*Common Name*	*Scientific Name*	*Common Name*	*Scientific Name*
Brown Trout	*Salmo trutta*	Common Carp	*Cyprinus carpio*	Emerald Shiner	*Notropis atherinoides*
Brook Trout	*Salvelinus fontinalis*	Bigmouth Buffalo	*Ictiobus cyprinellus*	Fathead Minnow	*Pimephales promelas*
Rainbow Trout	*Oncorhynchus mykiss*	Freshwater Drum	*Aplodinotus grunniens*	Flathead Chub	*Platygobio gracilis*
Burbot	*Lota lota*	River Carpsucker	*Carpiodes carpio*	Lake Chub	*Couesius plumbeus*
Channel Catfish	*Ictalurus punctatus*	Shorthead Redhorse	*Moxostoma macrolepidotum*	Longnose Dace	*Rhinichthys cataractae*
Northern Pike	*Esox lucius*	Smallmouth Buffalo	*Ictiobus bubalus*	Longnose Sucker	*Catostomus catostomus*
Shovelnose Sturgeon	*Scaphirhynchus platorynchus*	Golden Trout	*Oncorhynchus mykiss aguabonita*	Mottled Sculpin	*Cottus bairdi*
Walleye	*Sander vitreus*	Paddlefish S1, S2	*Polyodon spathula*	Mountain Sucker	*Catostomus platyrhynchus*
Yellow Perch	*Perca flavescens*	--	--	--	--
Smallmouth Bass	*Micropterus dolomieu*	--	--	White Sucker	*Catostomus commersoni*
Mountain Whitefish	*Prosopium williamsoni*	--	--	Goldeye	*Hiodon alosoides*
Sauger S2	*Sander canadensis*	--	--	Plains Minnow	*Hybognathus placitus*
Sauger X Walleye Hybrid	--	--	--	Blue Sucker S2, S3	*Cycleptus elongatus*
--	--	--	--	Spottail Shiner	*Notropis hudsonius*
--	--	--	--	Western Silvery Minnow	*Hybognathus argyritis*
--	--	--	--	Sturgeon Chub S2	*Macrhybopsis gelida*
--	--	--	--	Stonecat	*Noturus flavus*
--	--	--	--	Cisco	*Coregonus artedi*

Notes:
Source: MATL 2006b and Montana Fisheries Information System Database (2005).
-- = not applicable
S1: Critically imperiled because of extreme rarity and/or other factors making it highly vulnerable to extinction.
S2: Imperiled because of rarity and/or other factors making it vulnerable to extinction.
S3: Vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations.

3.9.3 Environmental Impacts

3.9.3.1 Alternative 1 - No Action

Under the No Action alternative, the proposed Project would not be implemented. There would be no construction activities or associated activities related to a new transmission line and existing electrical transmission service would be maintained and operated at its current level. This would result in no additional impacts to fish or their population within the Project area.

3.9.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Since all action alternatives would entail the proposed transmission line crossing fish-bearing water bodies, and impacts on the water bodies would not vary substantially between alternatives, impacts to fish and their habitat for all action alternatives are addressed within this section.

Potential impacts on the fish-bearing water bodies center around several disturbance related issues, such as: an increase in sediment transport due to increased erosion from disturbed and newly exposed areas; degradation of water quality as a result of contaminants (that is, herbicides or petroleum products); increased temperatures within water bodies as a result of removed riparian and streamside vegetation; or direct impacts or disturbance to fish and their habitats. None of the alternative alignments closely parallel streams or lakes where fish are present. Most crossings of stream habitats are short.

Impacts related to increased erosion and sediment transport would be mitigated and reduced through the implementation of best management practices and environmental protection measures. An erosion control plan would be developed and implemented during construction. Erosion control measures, such as water bars, drainage contours, straw bales, and filter cloths would reduce erosion within disturbed areas and prevent sediment transport to water bodies. In addition, disturbed areas would be contoured and seeded after completion of construction activities, which would reduce erosion and sediment transport. Due to the implementation of the environmental protection measures, increased sediment within water bodies as a result of the action alternatives would likely not occur, and fish and their habitat would not be impacted.

Implementation of a spill prevention plan and environmental protection measures would ensure that water quality is protected from petroleum products and herbicides, and impacts on fish or their habitat would not likely occur.

Impacts on fish habitat as a result of the removal of streamside vegetation and increased water temperatures would not be expected to occur as a result of the implementation of the action alternatives. Structures would not be sited within fish-bearing water bodies and there would be little or no removal of streamside vegetation as a result of construction or related activities.

The structures for alternatives 2, 3, and 4 would not be sited within any water bodies and construction activities would not occur within water bodies that support fish populations. Implementation of the action alternatives would not impact any fish populations or species distribution.

3.10 Threatened, Endangered, and Candidate for Listing Species

3.10.1 Analysis Methods

Analysis Areas

This section addresses the current occurrence, distribution of, and potential impacts to species that are listed as threatened and endangered species under the Endangered Species Act (ESA), species that are candidates for listing, and those that have been proposed for listing. In addition, species with limited members or distribution as indicated by the NHP and the FWP also are discussed in this section. Only species in the Project area are discussed. Analysis areas for vegetation, wildlife, and fish are the same as described in Sections 3.7.1, 3.8.1, and 3.9.1.

Information Sources

Vegetation information sources are the same as described in Section 3.7.1. Wildlife and fish information sources are the same as described in Sections 3.8.1 and 3.9.1.

3.10.2 Affected Environment

3.10.2.1 Vegetation

Species of concern in Montana are those species that are at risk or potentially at risk due to a combination of rarity, restricted distribution, habitat loss, or other limiting factors (MATL 2006b). Within the Project area a variety of habitats could support species of concern. Five plant species of concern have been reported to occur within or adjacent to the Project area (**Table 3.10-1).** Of these species, two (both non-vascular) are historic records. The three vascular species documented in Glacier and Cascade counties are found in similar habitats: wet soils or shallow water around ponds and meadows along streams.

TABLE 3.10-1
PLANT SPECIES OF CONCERN REPORTED TO OCCUR WITHIN OR ADJACENT TO THE PROJECT AREA

Common Name	Scientific Name	State Rank	County	Habitat
Vascular Plants				
Many-headed Sedge	*Carex sychnocephala*	S1[a]	Glacier; Cascade	Found in moist soil of meadows along streams and ponds in the valleys and on the plains.
Long Sheath Waterweed	*Elodea longivaginata*	S1	Glacier	Found in shallow water of ponds and lakes on the plains.
Chaffweed	*Centunculus minimus*	S2[b]	Cascade	Found in vernally wet, sparsely vegetated soil around ponds and along rivers and streams in the valleys and on the plains.
Non-vascular Plants				
Entosthodon moss	*Entosthodon rubiginosus*	SH[c]	Cascade	This species is restricted to seasonally damp and alkaline, usually silt or clay-rich soil at the edges of ponds, lakes, and sloughs, and on seepage slopes in relatively dry environments.
American funaria moss	*Funaria americana*	SH	Cascade	Little information is available, however, it is thought that this species prefers limestone caves and cliffs.

Notes:

Source: MATL 2006b

[a] S1: Critically imperiled because of extreme rarity and/or other factors making it highly vulnerable to extinction.

[b] S2: Imperiled because of rarity and/or other factors making it vulnerable to extinction.

[c] SH: Historical, known only from records over 50 year ago; may be rediscovered.

3.10.2.2 Wildlife

Special status animal species reported to occur within or adjacent to the Project area by the NHP are listed in **Table 3.10-2.**

TABLE 3.10-2
SPECIAL STATUS WILDLIFE SPECIES REPORTED TO OCCUR WITHIN OR ADJACENT TO THE PROJECT AREA BY NHP

Common Name	Scientific Name	Status[a]		
		FWS	BLM	State
Burrowing Owl	*Athene cunicularia*	--	Sensitive	S2B
Ferruginous Hawk	*Buteo regalis*	--	Sensitive	S2B
Baird's Sparrow	*Ammodramus bairdii*	--	Sensitive	S2B
Black-necked Stilt	*Himantopus mexicanus*	--	--	S3 S4B
Black-crowned Night-heron	*Nycticorax nycticorax*	--	--	S3B
Peregrine Falcon	*Falco peregrinus*	--	Sensitive	S2B
Common Tern	*Sterna hirundo*	--	--	S3B
White-faced Ibis	*Plegadis chihi*	--	Sensitive	S1B
Franklin's Gull	*Larus pipixcan*	--	Sensitive	S3B
Black-tailed Prairie Dog	*Cynomys ludovicianus*	C	Sensitive	S3
Long-billed Curlew	*Numenius americanus*	--	Sensitive	S2B
Bald Eagle	*Haliaeetus leucocephalus*	T	--	S3B, S3N

Notes:

Source: MATL 2006b.

[a] FWS: PS = Partial status – status in only a portion of the species' range; LE = listed endangered; C = candidate; T =threatened; - - = not listed

BLM: Sensitive = either known to be imperiled and suspected to occur on BLM lands, suspected to be imperiled and documented on BLM lands, or needing further study for other reasons; -- = not listed

State:

B = a state rank modifier indicating breeding status for a migratory species;

N = non-breeding.

S1 = critically imperiled because of extreme rarity, or because of some factor of its biology making it especially vulnerable to extirpation;

S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range;

S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations;

S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery;

Ferruginous Hawk

A breeding population of approximately 20 pairs of ferruginous hawks was located in 1994 in the Kevin Rim and Buckley Coulee area in the northeastern and north-central portions of the Project area. NHP and FWP biologists indicate this species continues to breed along Kevin Rim (Olson 2005a). This area is a mix of privately owned land and state trust land in Toole County. Kevin Rim is a sandstone escarpment that runs approximately 8 miles, generally north-south, and faces east. The cliffs and adjacent badlands, grasslands, and draws host a very high density of raptor nests, primarily ferruginous hawks and prairie falcon. Section 3.10 discusses additional raptors that nest in the Kevin Rim area. Two biologists walked along approximately 3 miles of Kevin Rim in early May 2005 surveying for raptor nests. No nests and no raptors were observed at that time (MATL 2006b).

Ferruginous hawks also occur in and around Benton Lake NWR in Cascade, Chouteau, and Teton counties. The area is a mix of federally managed land (Benton Lake NWR), privately owned land, and state trust land. A breeding population of at least two pairs has been recorded within the Refuge. The full extent of occupied breeding habitat is unknown. The habitat of ferruginous hawks in Montana has been studied extensively and described as mixed-grass prairie, shrub-grasslands, grasslands, grass-sagebrush complex, and sagebrush steppe (NHP 2004).

Peregrine Falcon

An historical peregrine eyrie is known to occur on private land near the confluence of Cut Bank Creek and Two Medicine River where the Marias River forms in Glacier County. Eyries have a high potential for re-occupancy. It is unknown when peregrine falcons last occupied this eyrie. Peregrine falcons arrive in northern breeding areas in late April-early May and departure begins in late August-early September. Nests typically are situated on ledges of vertical cliffs, often with a sheltering overhang. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites can include tall buildings, bridges, rock quarries, and raised platforms (NHP 2004).

Black-tailed Prairie Dog

A black-tailed prairie dog town is located southeast of Shelby in Toole County north of the Marias River. This particular population is at the western extent of this species' known distribution (Olson 2005a). Prairie dog colonies are found on flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation. The most frequently occupied habitat in Montana is dominated by western wheatgrass, blue grama, and big sagebrush. Colonies are associated with silty clay loams, sandy clay loams, and loams. Fine to medium textured soils are preferred, presumably because

burrows and other structures tend to retain their shape and strength better than in coarse, loose soils. In Montana, colonies tend to be associated with areas heavily used by cattle, such as near water tanks and long-term supplemental feeding sites (NHP 2004).

Baird's Sparrow

Baird's sparrow nests and individual birds have been reported in Teton County on private land. The most recent data available are from the early 1990s. This species is more common east of the Continental Divide in Montana. The majority of observations of the species in the state occur at the earliest in May and the latest in July (NHP 2004). Baird's sparrows prefer to nest in native prairie, but structure may be more important than plant species composition. Nesting may take place in cultivated grasses (nesting has been observed in crested wheat, while smooth brome is avoided). This sparrow has also been found to use drier areas during unusually wet years, and wet areas during unusually dry years. Because a relatively complex structure is so important for nesting, areas with little to no grazing activity are required (NHP 2004).

Burrowing Owl

Burrowing owl nesting sites are known to occur on Benton Lake NWR in Cascade and Chouteau counties and also in Pondera County. Fledglings have been observed on at least two nest sites on the refuge. Burrowing owls are migratory in the northern portion of their range, which includes Montana. The extreme dates of observation for burrowing owls in Montana are, at the earliest, March and, the latest, October (NHP 2005). The majority of the spring reports for this species occur, however, in April with most fall observations in September (NHP 2004).

Burrowing owls are found in open grasslands, where abandoned burrows dug by mammals such as ground squirrels, prairie dogs and badgers are available. Black-tailed prairie dog and Richardson's ground squirrel (*Spermophilus richardsonii*) colonies provide the primary and secondary habitat for burrowing owls in the state. The burrows may be enlarged or modified, making them more suitable. Burrowing owls spend much time on the ground or on low perches such as fence posts or dirt mounds (NHP 2004).

Burrowing owl nesting site surveys were conducted in July 2005 to help assess utilization of the Project area by the species. With the guidance of a FWP biologist (Olson 2005a) surveys were focused north of the Marias River, north of Highway 2, and along the Kevin Rim. Point-count surveys were used to survey for burrowing owls in July 2005 (Conway and Simon 2003). Point-count survey routes were selected based on habitat and anecdotal observation information by landowners and the FWP biologist. At each survey point, the observer pulled the vehicle off the road, parked on the

shoulder, exited the vehicle, and performed a 6-minute point-count survey listening for burrowing owl calls and scanning the surrounding landscape for owls using binoculars. While biologists did not observe any burrowing owls during field investigations, FWP biologists (Olson 2005b) and landowners have reported seeing this species within 1 mile of the proposed routes, north of Marias River.

Black-necked Stilt

Approximately 25 black-necked stilt nests were found in 1988 on Benton Lake NWR in Cascade, Chouteau, and Teton counties. This species continues to migrate to and nest on the refuge (Johnson 2005). Extreme migration dates in Montana are April, reported at Benton Lake NWR, and September, reported at Helena Valley Regulating Reservoir. In Montana, black-necked stilts nest in medium to large wetland complexes of open marshes and meadows, often in alkali areas.

Black-crowned Night-Heron

The first confirmed nesting of this species was in 1979, although records indicate presence of the birds as early as 1967 in the Benton Lake NWR area. The earliest records for Montana indicate arrival in April, with sightings throughout the summer months and extending into September, when most of the individuals begin their southerly movement. In 2000, one individual was found in the Chester area and stayed until October. Although highly adaptable to a variety of habitats, the black-crowned night-heron is likely to use shallow bulrush (*Scirpus* spp.) or cattail (*Typha* spp.) marshes, most often within a grassland landscape. In addition, they will also nest in cottonwoods, willows, or other wetland vegetation that allows them to nest over water or on islands that may afford them protection from mammalian predators. Most colonies are located in large wetland complexes, typically with a one-to-one ratio of open water and emergent vegetation (NHP 2004).

Common Tern

Approximately 75 common tern nests were found on Benton Lake NWR in 1988 and this species continues to nest on the refuge (Johnson 2005). The earliest migration date for common tern in Montana is in April, but the most concentrated arrival of birds occurs in May. Breeding has been recorded in May, June, and July, with fall departure beginning in late August and continuing into September. Nesting in Montana generally occurs on sparsely vegetated islands in large bodies of water. Nest substrate at these locations includes sandy, pebbly, or stony substrate, surrounded by matted or scattered vegetation (NHP 2004).

White-faced Ibis

Approximately 15 white-faced ibis nests were found in 1988 on Benton Lake NWR. The number and location of this species' nests on the refuge vary greatly from year to year. It is reported that the white-faced ibis often nests with the black-crowned night heron. White-faced ibises usually leave their wintering grounds in late March to early April. The earliest white-faced ibis observation in Montana was at Lee Metcalf NWR in March, but the most concentrated arrival in Montana occurs in May. In Montana, most begin their southern movement in August, and by September they are usually gone from the state (NHP 2004).

The white-faced ibis breeding habitat is typically freshwater wetlands, including ponds, swamps and marshes with pockets of emergent vegetation. They also use flooded hay meadows and agricultural fields as feeding locations. In Montana, white-faced ibises usually use old stems in cattails, hardstem bulrush, or alkali bulrush over shallow water as their nesting habitat (DuBois 1989). Water conditions usually determine whether nesting occurs in a particular area. Therefore, white-faced ibis nesting sites can often move around from year to year. However, it is a fairly adaptable species and the primary breeding requirement is colony and roosting site isolation (NHP 2004).

Franklin's Gull

In 1994, approximately 13,000 Franklin's gull nests were estimated to have occurred on Benton Lake NWR. The Franklin's gull generally returns to the state in mid-April and is gone by early to mid-October. Preferring large, relatively permanent prairie marsh complexes, the Franklin's gull builds its nests over water on a supporting structure of emergent vegetation. Nesting over water differs from the nesting habits of Montana's other, generally ground nesting, gulls. Franklin's gulls prefer to nest at sites with intermediate vegetation density, interspersed with open water of various sizes. One key feature of selected nesting sites is that the water levels remain high enough throughout the nesting period, or at least until the young can fledge, in order to provide protection from predators. During migration, the Franklin's gull can be found feeding on dry land, especially in cultivated fields prior to planting (NHP 2004).

Long-Billed Curlew

The long-billed curlew is ranked as S2B by the state and thus is considered at risk because of very limited and/or declining numbers, range, and/or habitat. The NHP did not have any element occurrence records for this species within the Project area; however, long-billed curlews were observed within the Project area. The long-billed curlew is a migratory summer resident that breeds and nests in Montana. The species inhabits shortgrass prairie communities, with grassland structure being more important than species composition, and appears to require large blocks of grasslands with

diverse foraging habitats. The long-billed curlew nests in well-drained native grasslands, sagebrush, and agricultural lands with a gently rolling topography. The species migrates from coastal habitats in California, Texas, and Mexico, to Montana where it is typically present between May and August.

Bald Eagle

The cottonwood stands along the Marias and Teton rivers may be used by bald eagles during the winter; however, they are not known to nest in the Project area (Olson 2005b). The majority of birds nesting in Montana are found in the western third of the state, although breeding pairs may be found along many of the major rivers and lakes in the central portion of the state and along the Yellowstone and Missouri Rivers to the eastern prairie lands (NHP 2004). East of the Continental Divide, the presence of bald eagles may be somewhat more seasonally dependent than in the western part of the state. Migrants from northern climates travel through Montana to reach wintering grounds further south.

3.10.2.3 Fish

Four fish species identified within the Project area are listed by the NHP as threatened, endangered, or of special concern under the Montana Endangered Species Act (**Table 3.9-1**). The NHP species of concern occurrence report did not include any fish species of concern. However, a search of the Montana Fisheries Information System indicated that three special status fish species potentially occur in the Teton River within the Project area. These three species are: sauger, blue sucker, and sturgeon chub.

The sauger is considered at risk by the State because of very limited and/or declining numbers, range, and/or habitat. The current distribution of the sauger in Montana includes the main stem of the Missouri River and portions of several tributaries, including the Teton River near where the transmission line would span. The sauger is physiologically adapted for turbid environments, and the species typically inhabits large turbid rivers and shallow lakes. Saugers spawn in large tributaries, and juveniles rear in off-channel habitats during spring and summer before shifting to main channel habitats in autumn.

The blue sucker is considered at risk/potentially at risk by the State. Eastern Montana is the home of the blue sucker, and it appears to inhabit the larger streams, primarily the Missouri and Yellowstone rivers. However, blue suckers make long spawning movements from the lower Missouri River to upstream areas and tributary streams followed by dispersal downstream. Blue suckers prefer waters with low turbidity and swift current (NHP 2004). The Montana Fisheries Information System indicates that the blue sucker can be found in the Teton River within the Project area; however, this would be the western extent of this species' distribution within Montana.

The State considers the sturgeon chub at risk. The sturgeon chub is one of several native minnows found east of the continental divide. Sturgeon chubs are rarely seen or collected, so little is known about them. Their food habits are unknown, but the ventral mouth and short intestine indicate they feed on bottom-dwelling insects. Sturgeon chubs are found in turbid water with moderate to strong current over bottoms ranging from rocks and gravel to coarse sand (NHP 2004).

3.10.3 Environmental Impacts

3.10.3.1 Alternative 1 – No Action

Under the No Action alternative, the proposed Project would not be implemented. There would be no construction activities or associated activities related to a new transmission line and existing electrical transmission service would be maintained and operated at its current level. This would result in no impacts to special status plant species, special status wildlife species, or special status fish or their populations within the Project area.

3.10.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Vegetation

Potential impacts to special status plant species for each alternative transmission line alignment were assessed through an evaluation of existing conditions and potential Project-related effects. These effects could include temporary disturbance, such as trampling, during construction and maintenance activities, habitat loss and fragmentation associated with structure footprints and access roads, the creation of new public access into undisturbed habitats, and possible noxious weed competition resulting from seed introduction from construction and maintenance activities. See Section 3.7.3 for further discussion of the proposed transmission line effects on native plants. Three state sensitive wetland species occur in or adjacent to the Project area; however, no federally listed species were located in the area. The state sensitive species are: many-headed sedge, long sheath waterweed, and chaffweed (**Table 3.10-1**). Historic occurrences of the state sensitive non-vascular species entosthodon mossand American funaria moss were recorded south of the Missouri River, outside of the study area.

The effects on special status vegetation species associated with construction, operation, and maintenance of the proposed transmission line would not differ from those discussed in Section 3.7.3. Furthermore, all special status vegetation species known occurrences are located outside of the analysis area and are therefore not likely to be affected by the alternative transmission line alignments.

Of the action alternatives, Alternative 3 has the least likelihood of affecting species of concern because it crosses less riparian habitat than Alternatives 2 and 4 (**Table 3.7-4**).

Wildlife

Potential impacts to special status wildlife species for each alternative transmission line alignment were assessed through an evaluation of existing conditions and potential project-related effects. These effects could include temporary disturbance during construction and maintenance activities, habitat loss, and fragmentation effects associated with clearing and grading of structure sites and access roads, and the creation of new public access into undisturbed habitats. For a more detailed discussion of general impacts of the proposed transmission line on wildlife, see Section 3.8.3. Sensitive or important wildlife habitats for species of concern within the project area include: intact native prairie grasslands that provide habitat for sharp-tailed grouse, long-billed curlew, and other grassland bird species and mature riparian cottonwood stands that represent a unique habitat type and potential bald eagle winter habitat. Only Alternative 3 would cross cottonwood stands over the Marias and Teton River.

The alternative alignments traverse the known habitat range of five species of concern and one federally threatened species. **Table 3.10-3** lists the linear miles of special status species' habitat range along each of the three action alternatives.

TABLE 3.10-3
LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE

Common Name	State Rank	Alternative		
		2	3	4
Black-crowned night-heron	S3B	11.2	9.1	2.6
Black-necked stilt	S3, S4B	11.2	9.1	2.6
Burrowing owl	S2B	4.2	3.9	0
Ferruginous hawk	S2B	6.5	0	7.0
Peregrine falcon	S2B	2.5	2.2	3.0
Total for All species (Minus the overlap)	--	19.9	11.3	11.7

Notes:

Source: NHP. 2005. GIS Analyses of Element Occurrence Data. Montana Natural Heritage Program, Helena, Montana. Available at: **http://nhp.nris.state.mt.us/mbd**,.

State: S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range; B = a state rank modifier indicating breeding status for a migratory species; S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations; S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery.
-- = not applicable

Bald Eagles (Federally Threatened)
Bald eagles would not be affected by the construction activities related to the transmission line, as there is no known breeding habitat within the transmission line alignments. In addition, wintering bald eagles that may use the cottonwood stands along the Marias and Teton rivers would not be disturbed because construction activities would occur during the spring and summer months.

The operation of the proposed transmission line could potentially impact bald eagles that may utilize the project area. As with all birds and raptors, there is the potential for transmission line related collisions and electrocutions. Raptor species, such as eagles, are less likely to collide with power lines, perhaps due to their excellent eyesight and tendency to not fly at dusk or in low visibility weather conditions (Olendorff et al. 1981). Impacts would be avoided as action alternatives would implement environmental protection measures that would reduce the potential for avian collisions. Areas with a higher likelihood for avian collisions, such as known flyways, were avoided. In addition, MATL would apply *Suggested Practices for Raptor Protection on Power Lines*, developed by the EEI and APLIC (1996), as appropriate, during design and construction of overhead structures and substation additions. Avian collisions would be reduced as approved line marking devices would be installed every 50 feet on overhead ground wires within all stream, river, and wetland crossings, such as crossings of the Marias River, the Dry Fork Marias River, Teton River, and the area east of Benton Lake NWR and within a ¼-mile buffer around these features. These marking devices would also be placed on any additional important flyway or migration routes that may be identified during pre-construction or construction activities. Monitoring of potential problem areas after construction would ensure that line markers are functioning properly. For more discussion of avian collisions and transmission lines, see Wildlife Section 3.8.

Electrocution of eagles was an issue of concern prior to the development of "avian-safe" structures. MATL transmission line design standards provide adequate spacing to eliminate the risk of raptor electrocution. MATL's line would incorporate avian-safe structures that provide adequate clearance to accommodate a large bird between energized and/or grounded parts. These structures typically have 60 inches of horizontal separation, which can accommodate the wrist-to-wrist span of an eagle. In addition, vertical separation of at least 48 inches can accommodate the height of an eagle from head to feet (APLIC and FWS 2005).

Burrowing Owl (State Sensitive)
The transmission line alignments would pass through burrowing owl habitat along the east side of Benton Lake NWR. While biologists did not observe any burrowing owls during field investigations, FWP biologists (Olson 2005b) and landowners have reported seeing this species within 1 mile of the action alternative alignments, north of the Marias River. The installation of support structures may disturb undetected

burrows and displace burrowing owls. However, the amount of habitat loss would be relatively minor and displaced owls would have adjacent burrow habitat to occupy in the event of disruption of burrows. Operation of the proposed transmission line could increase owl collisions. This would be expected to be rare as owls have excellent vision and MATL would be using line-marking devices within designated areas. For more discussion of avian collisions and electrocutions from transmission lines, see Wildlife Section 3.8.

Black-necked Stilt and Black-crowned Night-heron (State Sensitive)
The transmission line alignments pass through the eastern edge of potential nesting grounds for the black-necked stilt and black-crowned night heron just outside the eastern boundary of Benton Lake NWR. This area is a potential migration corridor on the east side of Benton Lake NWR. Nesting stilts and herons may be disturbed and displaced during nesting season as a result of construction activities. This may interfere with the nest success of birds within or adjacent to the construction areas; however, construction activities would be temporary and the opportunity for re-nesting would likely occur. Permanent habitat loss would be limited to the footprint of the support structures and access roads. This habitat loss would be a relatively minor amount with respect to the available habitat within the area.

Ferruginous Hawk (State Sensitive)
Ferruginous hawk habitat is known to occur within and adjacent to the Project area. Impacts to ferruginous hawks would not vary from impacts to other raptors. A discussion of impacts to raptor is in Wildlife Section 3.8.

Long-billed Curlew (State Sensitive)
Long-billed curlews were observed in wheat-stubble fields and CRP land during field investigations throughout the summer 2005 (MATL 2006b). Long-billed curlews would experience temporary disturbance and displacement during installation; however, construction activities would be temporary and the opportunity for re-nesting would likely occur. In addition, there would be habitat loss as a result of support structures and access roads; however, this would be relatively minor and would not impact populations within the area. See Wildlife Section 3.8 for further discussion of the proposed transmission line impacts on birds.

Peregrine Falcon (State Sensitive)
The transmission line alignments cross the location of a historic peregrine falcon eyrie along the Marias River. In May, July, and August 2005 biologists surveyed the confluence of Cut Bank Creek and Two Medicine River looking for the eyrie and signs of peregrine falcons; neither eyrie nor peregrine falcons were observed (MATL 2006b). It is unknown when peregrine falcons last occupied or were sighted around this eyrie (Olson 2005b). The construction activities associated with the proposed transmission line could potentially disturb the peregrine falcon eyrie, if occupied. Disturbances

would be temporary and would not directly disturb any occupied nest sites. For a discussion of collision and electrocution impacts on raptors, see Wildlife Section 3.8.

Fish

A search of the Montana Fisheries Information System indicated that three special status (State Sensitive) fish species potentially occur in the Teton River within the Project area. These three species are: sauger, blue sucker, and sturgeon chub. No federally threatened, endangered, or candidate fish species were identified in the Project area.

Effects on special status fish associated with the implementation of the proposed transmission line would not differ from those discussed in Section 3.9.3.

3.11 Air Quality

3.11.1 Analysis Methods

Potential impacts to air quality from installation of the power transmission line were evaluated using criteria pollutant emission rates from sources (for example, equipment engines and dust from construction activities) and air regulations (including emission standards, as applicable) pertinent to the project.

Analysis Area

The analysis area for air resources is the MFSA application Project study area (**Figure 1.1-1**) and the surrounding air shed within a distance of 10 miles. The analysis area is located in north central Montana and exhibits terrain described as rolling hills with elevations ranging from 3,400 feet (Great Falls) to 3,800 feet (Cut Bank) above mean sea level.

Information Sources

Base information for the analysis of air resources was derived from the Montana MFSA application (MATL 2006b). Base information includes data such as the alignments, area impacted by construction activities, equipment type, and duration of construction. Comparative information, such as ambient air quality, atmospheric conditions, and existing air emission sources, were derived from databases maintained by National Oceanic and Atmospheric Administration (NOAA) (2006), EPA (2006a, 2006b), WRCC (2006), and DEQ (2006a). Regulatory standards for air quality (for example, criteria pollutants) were obtained from EPA (2006b) and DEQ (2006a, 2006b).

3.11.2 Affected Environment

Air quality in the analysis area is affected by activities currently conducted within the area. Examples of such activities include fixed facilities such as petroleum refining plants (refineries), crude oil and natural gas compressor stations, petroleum product terminals, coal-fired electrical generating plants, concrete mix plants, asphalt mix plants, and crematoriums. Portable source examples include facilities such as gravel crushers, associated processing equipment, asphalt plants, and farming. Smoke from grass and forest fires from late spring through early fall can degrade air quality depending on the year.

Climate

Climate is influenced by major topographic features, including the plains of northern Montana, and, 40 to 60 miles to the west, by the Rocky Mountains. The continental divide and Rocky Mountains traverse the western half of Montana in roughly a north-south direction. The continental divide exerts a marked influence on local climate. Climate characteristics east of the continental divide are decidedly continental. In general, the analysis area (east of the continental divide) is colder, is characterized by lower precipitation, and is windier than conditions west of the divide.

Plains in the analysis area range in elevation from about 3,400 to 3,800 feet above mean sea level. Summers typically receive 1 to 2 inches of precipitation per month with temperatures ranging from warm to hot. Winters, while usually cold, have few extended cold spells. Between cold waves there are periods of mild but often windier weather called "chinook" weather. Wind speed and direction data for the subject area from NOAA show varying speeds and direction. Based on data observed at Great Falls, the typical wind speed averages 10.5 miles per hour and blows primarily from the southwest. Chinook winds frequently reach speeds of 25 to 50 miles per hour or more and can persist, with little interruption, for several days.

Temperature and Precipitation

Based on long-term precipitation data collected in Great Falls, Montana, the average daily temperature of the study area ranges from 30°F in January to 83°F in July. Average monthly precipitation ranges from 0.6 inch in February to 2.5 inches in May. The largest amount of precipitation occurs during the spring in May and June. Summer precipitation is often associated with thunderstorms. Total annual precipitation from 1961 to 1990 averaged 15.2 inches per year.

Fall and winter are cool to cold with few extended cold spells. Most precipitation during this period is in the form of snow; annual snowfall ranges from 14 to 60 inches with heavier accumulations generally recorded closer to Great Falls.

Air Quality

DEQ and the federal government have established ambient air quality standards for criteria air pollutants including carbon monoxide (CO), lead (Pb), sulfur dioxide (SO_2), particulate matter smaller than 10 microns (PM_{10}), ozone, and nitrogen oxides (NO_x). In 1997, the EPA revised the federal primary and secondary particulate matter standards by establishing annual and 24-hour standards for particles 2.5 micrometers in diameter or smaller ($PM_{2.5}$).

Table 3-11.1 lists federal and state air quality standards. National primary standards are levels of air quality necessary, with an adequate margin of safety, to protect public health. National secondary standards are levels of air quality necessary to protect public welfare from known or anticipated adverse effects of a regulated air pollutant.

The attainment status for pollutants within the project area is determined by monitoring levels of criteria pollutants (CO, Pb, SO_2, PM_{10}, ozone, and NO_x) for which National and Montana Ambient Air Quality Standards exist. Air quality in the analysis area is designated as attainment for all criteria pollutants. The attainment designation means that no violations of Montana or national air quality standards have been documented in the area. Great Falls was reclassified in 2002 by the EPA from non-attainment for carbon monoxide to attainment.

TABLE 3.11-1
STATE OF MONTANA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Air Quality Standard Concentration [a]	
		Montana	National
Ozone	1 hour	195 μg/m³ (0.12 ppm)	235 μg/m³ (0.12 ppm)
	8 hours	--	157 μg/m³ (0.08 ppm)
Carbon Monoxide	1 hour	25,560 μg/m³ (23 ppm)[b]	40,000 μg/m³ (35 ppm)
	8 hour	10,000 μg/m³ (9.0 ppm) [b]	10,000 μg/m³ (9.0 ppm)
Nitrogen Oxides	Annual Arithmetic Mean	100 μg/m³ (0.05 ppm)	100 μg/m³ (0.05 ppm)
Sulfur Dioxide	Annual Arithmetic Mean	52 μg/m³ (0.02 ppm)	80 μg/m³ (0.03 ppm)
	24 hours	261 μg/m³ (0.10 ppm)	365 μg/m³ (0.14 ppm)
	3 hours	--	1,300 μg/m³ (0.50 ppm)
	1 hour	1,300 μg/m³ (0.50 ppm)	--
Particulate Matter as PM_{10}	Annual Arithmetic Mean	50 μg/m³	50 μg/m³
	24 hours	150 μg/m³	150 μg/m³
Particulate Matter as $PM_{2.5}$	Annual Arithmetic Mean	15 μg/m³	15 μg/m³
	24 hours	65 μg/m³	65 μg/m³
Lead (Pb)	Quarterly Arithmetic Mean	1.5 μg/m³	1.5 μg/m³

Note: μg/m³ = micrograms per cubic meter; ppm = parts per million; PM_{10} = Particulate Matter smaller than 10 microns; $PM_{2.5}$ = Particulate Matter smaller than 2.5 microns.
Sources: Administrative Rules of Montana (ARM) 17.8 and 40 CFR Part 50, National Primary and Secondary Ambient Air Quality Standards
a Primary Standard unless otherwise noted
b Secondary Standard

Air Quality Monitoring Data

Ambient air quality data have been collected in or near the analysis area at monitoring stations in Great Falls and Browning, Montana. Data from monitoring stations in Browning (approximately 35 miles west of the power line alignment) were included to provide a second source (that is, city location) of information. Data collected at the Great Falls sites include criteria pollutants PM_{10}, $PM_{2.5}$, SO_2, and CO. Data collected at the Browning sites include the criteria pollutant PM_{10}. Air quality data for criteria pollutants are presented in **Appendix K.**

PSD Classification

The analysis area and vicinity are designated Class II, as defined by the federal Prevention of Significant Deterioration (PSD) provision of the Clean Air Act. The PSD Class II designation allows for moderate growth or degradation of air quality within certain limits above baseline air quality. Industrial emission sources proposing construction or modifications must demonstrate that the proposed emissions would not cause major deterioration of air quality in all areas. The standards for significant deterioration are more stringent for Class I areas than for Class II.

Federal/State Mandatory Class I areas located within 100 miles of the project area include Scapegoat Wilderness (50 miles west), Bob Marshall Wilderness (50 miles west), Glacier National Park (40 miles west), and Gates of the Mountains Wilderness (50 miles southwest).

Existing Sources

There are multiple air emission sources in the vicinity of the project area. Some of the permitted fixed facilities include petroleum refining plants (refineries), crude oil and natural gas compressor stations, petroleum product terminals, concrete mix plants, asphalt mix plants, crematoriums, and other facilities. Permitted portable facilities include gravel crushers and associated processing equipment, and asphalt plants. These facilities operate under specific permit limits for criteria pollutants such as PM_{10}, $PM_{2.5}$, SO_2, CO, and Pb. Other potential emission sources (for example, fugitive dust and smoke sources) include farming, field and forest burning, and dust from gravel roads.

Particulate Emissions

Potential sources of particulate (for example, PM_{10}, $PM_{2.5}$) emissions for the action alternatives could come from equipment used during the construction of the power line and from equipment used to conduct maintenance and make repairs to the transmission line during the life of the project. Possible emissions during construction include fugitive dust from vehicles and equipment traveling on dirt roads and from engine exhaust.

Gaseous Emissions
Potential sources of gaseous (for example, NO_2, SO_2, and CO) emissions for the proposed Project could come from equipment used during the construction of the power line and from equipment used to conduct maintenance and make repairs to the transmission line during the life of the project. Possible emissions could be associated with engine exhaust from equipment traveling to the site and along access roads.

Air Quality Permitting
Industrial air quality permitting is part of the Montana State Implementation Plan process. DEQ uses air quality permit conditions to help ensure compliance with applicable Montana and National Ambient Air Quality Standards and PSD increments. Work conducted under the proposed Project would be subject to Administrative Rules of Montana (ARM) Title 17, Chapter 8 (Air Quality). Due to the nature of the project (that is, mobile equipment and short duration of construction), no specific permit requirements apply to gaseous emissions. However, construction would be required to comply with fugitive dust provisions under subchapter 3, which require precautions to control airborne particulate emissions.

3.11.3 Environmental Impacts

Under all alternatives, no air quality permit or prevention of significant deterioration analysis would be needed.

3.11.3.1 Alternative 1 - No Action

Emissions

Under the No Action alternative, the power line would not be constructed and emissions and air quality in the area would remain at current levels.

3.11.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Alternatives 2, 3, and 4 would result in an increase in activities that could adversely affect air quality during construction (short term), and during operation and maintenance of the transmission line (long term). For example, construction equipment (earthmoving equipment, cranes, or other equipment) and support vehicles (crew transportation, fueling, or other vehicles) would be used during the construction phase, and lighter equipment (for example, four-wheel-drive pickups) would be used during the operation and maintenance period. The construction phase is anticipated to last approximately 8 months. Operations and maintenance activities would last the life of the project, but impacts would be intermittent (for example, monthly and quarterly) and relatively minor compared to impacts during construction.

Emissions

Emissions from construction equipment and support vehicles would be transient and short term. The duration of the adverse impact would be a function of whether the source activity is associated with construction, or with operations and maintenance activities. The majority of the adverse impact would occur during the project construction phase when there is a relatively larger amount of equipment movement and vehicular traffic. Air quality impacts would include fugitive dust and gaseous emissions from engine operation. Fugitive dust would be controlled through dust control measures such as water sprays, limiting the speed of construction equipment, and reseeding the disturbed areas at the end of the construction period. Gaseous emissions would be limited through construction management and scheduling.

Differences in the rate of emissions between alternatives would be a function of the amount of time project vehicles and equipment are used in the transmission line right of way. The amount of time equipment is used depends on several factors including, but not limited to, length of the transmission line for each alternative, overall topography and the presence of difficult or steep terrain, and the number of stream crossings. An alternative characterized by a longer alignment or difficult terrain would result in overall greater emissions.

3.12 Audible Noise

Noise is defined as unwanted sound; it may be intermittent, continuous, steady, impulsive, stationary, or transient. Noise levels are quantified using units of decibels. The A-weighted scale approximates the human ear's response to sounds most effectively. These measurements are reported in A-weighted decibels (dBA).

Audible noise from transmission lines is primarily due to point source corona (crackling and hissing with small amounts of light). It routinely occurs when air is ionized around a gap, burr, irregularity, or some non-insulated component during the conductance of electricity across power lines. Periods of rain, fog, or heavy humidity amplify these corona effects due to the bridging capabilities of electricity and water. Additionally, corona is produced when transmission lines break down over time and their fastener components loosen resulting in an air gap. All corona-based noise sources would be point source locations due to the inconsistencies found along the line.

In addition to audible noise due directly to the transmission line and to other environmental factors, noise can be generated as a result of wind blowing across power lines and power poles when airflow is non-laminar (see Section 3.12.3).

3.12.1 Analysis Methods

Analysis Area

The analysis area for noise is the proposed and alternative transmission line alignments. Noise estimates were made at the edge of the EMF safety zone and 100 feet to either side of the centerline.

Information Sources

The U.S. Department of Housing and Urban Development (HUD) noise level criteria that developments and industrial construction must adapt to are a 65 dBA day/night noise level (L_{dn}) for exterior environments and 45 dBA L_{dn} for interior home environments (HUD 2001).

The DOE BPA conducted research to determine the likelihood of receiving complaints related to transmission line audible noise. These noise values can be related to the level that would be exceeded 50 percent of the time during rain over 1 year (L_{50}) (BPA 1982). The L_{50} values, under foul weather, are calculated at 100 feet from the centerline (BPA 1982).

The following probabilities of receiving complaints are based upon their expected audible noise level:

- High, Numerous Complaints: 60 dBA
- Moderate, Some Complaints: 52 to 60 dBA
- Low, No Complaints: 52 dBA

MATL used the BPA Corona and Field Effects Program (Version 3.0) to determine the decibel levels from the centerline for the H-frame and monopole structures (MATL 2006b).

3.12.2 Affected Environment

With the exception of the immediate Cut Bank area, the proposed project alternatives are located in a rural, predominantly agricultural area. Sources of background noise to rural residents and occasional visitors to the area include wind, agricultural activity, recreation (primarily hunting), and vehicles traveling the numerous county and state roadways and Interstate 15 in proximity to these alternatives. See **Table 3.12-1** for common noise sources and their noise levels.

TABLE 3.12-1
NOISE LEVELS OF COMMON SOURCES

Sound Source	Sound Pressure Level (dBA)
Air raid siren at 50 feet	120
Maximum levels in audience at rock concerts	110
On platform by passing subway train	100
On sidewalk by passing heavy truck or bus	90
On sidewalk by typical highway	80
On sidewalk by passing automobiles with mufflers	70
Typical urban area background/busy office	60
Typical suburban area background	50
Quiet suburban area at night	40
Typical rural area at night	30
Isolated broadcast studio	20
Audiometric (hearing testing) booth	10
Threshold of hearing without hearing damage	0

Source: Cowan 1994
dBA = A-weighted decibels.

General noise level data from the EPA and the National Transit Institute were used to provide a typical sound level range for rural residential and agricultural cropland uses. Typical baseline noise levels in the Project study area likely range from approximately 30 dBA to 48 dBA (EPA 1978).

ARM 17.20.1607(2)(a) states "for electric transmission facilities, the average annual noise levels, as expressed by dBA-L_{dn} would not exceed 50 decibels at the edge of the right of way in residential and subdivided areas." The BPA design criterion for corona-generated audible noise (L_{50}, foul weather) is 50 +/-2 dBA at the edge of the right of way (BPA 1982).

Commercial and industrial activities (linear/point facilities) within the analysis area include communication sites (cell towers, microwave facilities), oil and gas development, surface mines (gravel pits), airstrips (public and private), railroads, pipelines and transmission lines, roadways, and military installations (MATL 2006b) Additionally, most residential areas (sensitive receptors) throughout the analysis area are approximately ¼ mile from the proposed transmission line centerline and alternative alignments.

3.12.3 Environmental Impacts

3.12.3.1 Alternative 1 – No Action

There would be no noise impacts related to selection of the No Action alternative.

3.12.3.2 Alternatives 2, 3 and 4 – Action Alternatives

Noise resulting from these alternatives would come from construction, corona effects, and wind.

Short-Term Adverse Impacts

Transmission line construction would require the short-term use of the following kinds of construction equipment: cranes, augers, compressors, air tampers, generators, haul trucks, bulldozers, excavators, concrete equipment, and other equipment. Construction activities would create both intermittent and continuous noises throughout the project at multiple pole locations along the chosen alignment. Intermittent noises would be created by passing trucks, loading and unloading operations, drilling, and other activities. Continuous noises would be created by generators, air tampers, compressors, and drilling operations.

The typical range of noise for earthmoving equipment at 50 feet is from 72 to 96 dBA. Typical ranges of noise for material handling equipment is from 75 to 88 dBA. Noise values 100 feet from the source are 66 to 90 dBA; noise values ¼ mile away are 44 to 68 dBA. Different makes and models of equipment, motor idling speeds, engine maintenance characteristics, and overall muffler performance would result in different dBA values.

The transmission line support structures would average approximately 500 to 800 feet apart and would be constructed within the alignment (MATL 2006b). Approximately 10 to 12 transmission line structures would be erected per day. Therefore, the areas directly perpendicular to the facility location would be affected approximately half the day during the construction process (VandenBos 2006).

During the construction process, vibration levels from heavy equipment grading, transport, and compacting activities may cause vibrations noticeable to residents within 100 feet. The peak vibration level from pile driving activities would cause the largest perceptible impact within the facility location. Other activities such as large trucks and equipment motoring over potholes and rocks would cause slight noticeable vibrations up to 100 feet.

Long-Term Adverse Impacts

Corona

Table 3.12-2 identifies the audible noise values calculated in MATL's permit application when simulating the 230-kV transmission line for both H-frame structures and monopole structures. Standard transmission line building constituents were used including a rain rate (applicable to audible noise) of 0.14 inch per hour (MATL 2006b). BPA indicated that the rain data typically used in the program are from an average of rainfall throughout the northwest region (Sterns 2006) which has more precipitation per year than the analysis area. Additionally, the rain events are a shorter duration than those of the analysis area, which would limit the audible noise dose received at the boundary from the centerline (100 feet). Based upon historic weather data from the WRCC, the city with the highest rainfall is Great Falls with an average of 14.81 inches per year (WRCC 2006). Actual local conditions for rain are around 0.0017 inch per hour. The BPA modeling formula for transmission noise indicates that more noise is expected with larger amounts of rain. Therefore, the estimated noise calculated by MATL (**Table 3.12-2**) is considerably higher than what would actually be generated.

Table 3.12-2 indicates that for H-frame structures, audible noise levels of 46.23 dBA and 49.56 dBA would be expected at distances of 100 feet, and 52.33 feet (edge of safety zone) from the centerline, respectively. These values would be below the recommended guidelines for corona-generated 50 +/- 2 dBA at the edge of the right of way, developed by BPA, and the 65 dBA exterior noise housing regulations developed by HUD.

TABLE 3.12-2
AUDIBLE NOISE EFFECT

Pole Type	Distance from Centerline (feet)	Audible Noise (dBA) (L_{50})
H-frame Double Pole	100	46.23
	52.33	49.56
Monopole	100	47.13
	54	50.00
	30.18	52.48

Notes:

Estimates calculated using Corona and Field Effects Program (Kingery 1991), and based on conductor ground clearance of 19.72 feet (NESC specification). dBA (L_{50}) = decibels (A-weighted) during foul weather, indicated by L_{50}.

No data are available for noise generated by wind.

Wind

Noise can be generated as a result of wind blowing across power lines and power poles when airflow is non-laminar. Only limited research has been conducted to address wind-caused noise due to transmission line placement in urban and rural settings. For example, a wind velocity of 20 meters per second across a single conventional-style conductor cable resulted in a single-point octave band center frequency of 55 dBA at 100 hertz (Furukawa Review 2002). Data from multiple conductor lines for varying wind velocities are not available.

3.13 Socioeconomics

3.13.1 Analysis Method

Analysis Area

The socioeconomic analysis area defined for the Project includes portions of Cascade, Chouteau, Glacier, Pondera, Teton, and Toole counties. This section provides the demographic, social, and economic profiles of each of these counties. These profiles will serve as a basis from which to estimate potential impacts to the socioeconomic condition of the region should the Project be implemented. This section also includes the baseline conditions for evaluating effects of the Project on minority and low income populations in accordance with the February 11, 1994, Executive Order 12898: *Federal Actions to Address Environmental Justice in Minority and Low Income Populations* (February 11, 1994).

Information Sources

The demographic profiles for each county are based on U.S. Census data collected in 2000, as presented in the MFSA application (MATL 2006b). Population and growth estimates developed in 2005 by the U.S. Census Bureau are also referenced, although these data are not uniformly available across all counties and towns within the analysis area. As a result, these estimates are generally not used for quantitative analysis, but may be used in certain instances to provide a temporal characterization of a specific locality when appropriate. Additional demographic and economic statistics were compiled from various sources including, but not limited to, the Montana Department of Labor and Industry, Montana Department of Commerce, and the USDA.

Estimates of construction labor force and capital construction costs are based on available information from MATL and figures developed during construction of similar projects occurring elsewhere.

Information related to public services, including level of service and capacity, was obtained through documents provided by MATL to DEQ in the spring of 2006.

Methods of Analysis

Direct, indirect, and cumulative impacts to socioeconomic resources were assessed based on reviews of similar projects that have occurred in the state and other relevant energy industry policy documents and through interviews with individuals whose fields of expertise and experience provide insight relevant to this specific project. Such sources are referenced as appropriate. Conclusions regarding the impacts to local

services that may occur during construction, operation, and maintenance of the project were developed by evaluating the number of employees and the duration of these activities relative to the availability of services and amenities that may be required.

3.13.2 Affected Environment

The discussion below presents information on demographics, economic activity, and local resources for each county in the analysis area.

3.13.2.1 Demographics

The Project analysis area is characterized by large expanses of open, sparsely populated agricultural land. Over 88 percent of the land within the analysis area is cropland, while the remaining agricultural lands are used for grazing or are under the federal CRP (MATL 2006b). Like much of the upper Great Plains, market forces triggered in part by advances in farming technology, consolidation of large ranch tracts into corporate production, and large tracts removed from production under the CRP have contributed to a decline in the populations of Pondera and Toole counties and general stagnation of growth in Teton County since the 1960s. The Montana Department of Labor and Industry (2005) reports that oil and gas account for only about 11 percent of Toole County's total wages and even less in the other counties in the analysis area. These factors combine to reduce demand for labor and demand for goods and services related to agricultural and energy production. The population of Chouteau County has similarly declined to less than half the number of people today than were there in the early 1900s. However, the 2005 estimated population of Chouteau County is about the same as the reported population in 1990 (U.S. Census Bureau 2005a). Meanwhile, growing tribal population on the Blackfeet Reservation, which makes up the largest population sector in Glacier County, has resulted in a growth rate in that county that has mirrored the state's growth pattern. The state's population grew by almost 13 percent between 1990 and 2000, while the population of Glacier County grew by 9.3 percent during that same time period. Growth levels for both the state and Glacier County have tapered since then, to 3.7 percent and 2.3 percent, respectively. Cascade County's population grew steadily, about 0.6 percent annually, throughout most of the 1900s, but tapered off toward the end of the century and is estimated to have decreased since the 2000 federal census years (U.S. Census Bureau 2000a).

Demographic data for each of the counties within the Project analysis area, as generally described in MATL's MFSA Application (MATL 2006b), are presented below and summarized in **Tables 3.13-1** and **3.13-2**.

TABLE 3.13-1
DEMOGRAPHIC PROFILES OF COUNTIES WITHIN THE PROJECT ANALYSIS AREA

	Cascade County		Teton County		Chouteau County		Pondera County		Toole County		Glacier County		Percent in Montana
	No.	Percent in County	No.	Percent in County	No.	Percent in County	No.	Percent in County	No.	Percent in County	No.	Percent in County	
Total Population	80,357 79,298 (2001)	--	6,445	--	5,970 5,575 (2004)	--	6,424	--	5,267	--	13,247 13,508 (2004)		
Gender													
Male	39,756	49.5	3,174	49.2	2,997	50.2	3,169	49.3	2,716	51.6	6,553	49.5	49.8
Female	40,601	50.5	3,271	50.8	2,973	49.8	3,255	50.7	2,551	48.4	6,694	50.5	50.2
Age													
15 or Younger	17,163	21.4	1,392	21.6	1,384	23.2	1,503	23.4	1,066	20.2	3,757	28.4	20.6
16 – 24	11,100	13.8	758	11.8	724	12.1	810	12.6	638	12.1	2,067	15.6	14.4
25 – 44	22,558	28.1	1,587	24.6	1,437	24.1	1,594	24.8	1,484	28.2	3,560	26.9	27.2
45 – 64	18,288	22.8	1,635	25.4	1,382	23.1	1,473	22.9	1,242	23.6	2,642	19.9	24.4
65+	11,248	14.0	1,073	16.6	1,043	17.5	1,044	16.3	837	15.9	1,221	9.2	13.4
Average Age	37.2	--	39.3	--	38.7	--	38.0	--	38.8	--	32.5		37.4

Notes:
Source: U.S. Census Bureau, 2005a
-- = Not applicable

TABLE 3.13-2
RACE AND ETHNICITY WITHIN COUNTIES IN THE PROJECT ANALYSIS AREA

Race or Ethnicity	Cascade County		Teton County		Chouteau County		Pondera County		Toole County		Glacier County		Percent in Montana
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
White	72,897	90.7	6,207	96.3	5,015	84.0	5,374	83.7	4,945	93.9	4,693	35.4	90.6
Black or African American	900	1.1	12	0.2	5	0.1	6	0.1	8	0.2	11	0.1	0.3
American Indian and Alaskan Native	3,394	4.2	98	1.5	873	14.6	929	14.5	168	3.2	8,186	61.8	6.2
Asian	652	0.8	6	0.1	14	0.2	9	0.1	16	0.3	9	0.1	0.5
Native Hawaiian and other Pacific Islander	67	0.1	0	0	6	0.1	3	0.1	1	0.1	7	0.1	0.1
Some other race	547	0.7	27	0.4	14	0.2	8	0.1	17	0.3	24	0.2	0.6
Two or more races	1,900	2.4	95	1.5	43	0.7	95	1.5	112	2.1	317	2.4	1.7
Hispanic or Latino	1,949	2.4	73	1.1	40	0.7	54	0.8	61	1.2	159	1.2	2.0

Note:
Percentages may not equal 100 because of rounding and potential duplicate counting for "some other race" and "two or more races."

Cascade County

Cascade County encompasses the southern portion of the Project analysis area and is Montana's third most populous with 79,298 residents (U.S. Census Bureau 2000a). Cascade County covers approximately 2,698 square miles of land, resulting in an average population density of approximately 30 individuals per square mile. County population levels declined by approximately 2.7 percent between 1970 and 2005 based on estimates provided by the Montana Department of Commerce (2005).

The City of Great Falls is the largest population center (56,622 people based on the 2000 federal census) in the county and is also the county seat. Other towns in Cascade County include Belt, Black Eagle, Cascade, Fort Shaw, Monarch, Neihart, Simms, Stockett, Sun River, Ulm, and Vaughn. These towns range in size from approximately 70 people to close to 1,000 in Black Eagle, according to U.S. Census Bureau Data (2000a). Malmstrom Air Force Base is also located in Cascade County east of Great Falls and accounts for approximately 5,400 people in the county (Great Falls Development Authority 2005).

Average family size within Cascade County is 2.97 individuals, and the average household size is 2.41 individuals. Most people are homeowners (64.9 percent), while the remainder rent housing. Less than 8 percent of housing units are unoccupied.

Chouteau County

Chouteau County encompasses 3,973 square miles. Based on the most recent population estimates of 5,463 individuals (Montana Department of Commerce 2005), the population density is approximately 1.4 persons per square mile. The 2005 population estimates, derived from tax records and birth and death statistics, suggest that Chouteau County has potentially lost up to 8.5 percent of its population between 2000 and 2005. This sharp decline balances with a similar increase in population between 1990 and 2000, but overall there has been a relatively steady decline since 1960. Communities within Chouteau County include the county seat of Fort Benton, Big Sandy, Box Elder, Carter, Geraldine, Iliad, Loma, and Shonkin. According to the 2000 federal census, the average family within Chouteau County contains 3.1 individuals and the average household size is 2.6 individuals. Approximately 69 percent of the county's residents are home owners while the remainder rent. The housing vacancy rate is fairly high at 19.8 percent.

Glacier County

After Cascade County, Glacier County is the most populous county within the Project analysis area with an estimated 2005 population of 13,552. Land area of the county is 2,995 square miles, resulting in an average density of 4.5 people per square mile. Unlike

the other counties within the analysis area that have experienced a population reduction, Glacier County grew approximately 2.3 percent between 2000 and 2005 (Montana Department of Commerce 2005).

Principal communities in Glacier County include Babb, Browning, Cut Bank, Del Bonita, and Saint Mary. Cut Bank is the county seat and reported an estimated population of 3,155 in 2004 (U.S. Census Bureau 2005a). The Blackfeet Reservation accounts for the majority of the county's land area and the majority of the county's population. U.S. Census data indicate that in 2000, the total on-reservation and off-reservation trust land Blackfeet population was estimated to be about 10,100 and the on-reservation population alone was 8,507 (64.2 percent of the census year 2000 population). If all of these individuals reside in Glacier County, they would account for 76 percent of all people in the county. The Blackfeet tribe also represents a growing population in the county, which is likely the driving force behind Glacier County's growth (about 0.6 percent annually since 1970) (U.S. Census Bureau 2000b).

The average family in Glacier County consists of 3.6 individuals and the average household size is 3 individuals. About 62 percent of the residents are homeowners; the remainder rent. About 18 percent of the county's housing inventory is vacant.

Pondera County

Pondera County encompasses approximately 1,625 square miles and had an estimated population of 6,087 people in 2005 (Montana Department of Commerce 2005), resulting in an average population density of roughly 3.7 people per square mile. The 2005 population estimate indicates that the population of the county has declined by 5.2 percent since 2000. Historic population records indicate an annual decline of 0.2 percent since 1960.

Principal communities within Pondera County include Conrad, Heart Butte, and Valier. Conrad is the county seat.

The average family in Pondera County is comprised of 3.2 individuals and the average household size is approximately 2.6 individuals. Most of the county's residents own their principal residence (70.5 percent), while the remainder are renters.

Teton County

Teton County encompasses an area of 2,272.6 square miles. The total population as of 2000 was 6,445 persons, yielding a population density of approximately 2.8 persons per square mile. County population levels have been generally stagnant since about 1980, and recent population estimates for 2005 (Montana Department of Commerce 2005)

indicate a 3.2 percent decline since 2000. Choteau is the county seat and is home to roughly 28 percent of the county's residents. The remainder of the population is distributed throughout unincorporated county lands and small towns and communities within the county, the largest of which is Fairfield with a 2004 estimated population of 641 (U.S. Census Bureau 2005a).

Average family size in Teton County is 3.1 individuals and the average household size is 2.5 individuals. Most people in the county own their home (75.4 percent) while the remainder rent. Approximately 12.8 percent of housing units are unoccupied.

Toole County

The total estimated population of Toole County in 2005 was 5,031 (Montana Department of Commerce 2005 and Montana Department of Labor and Industry 2005). Land area of the county is 1,911 square miles, yielding an average population density of 2.6 individuals per square mile. Communities in Toole County include the county seat of Shelby, which is also the most populous town in the county with approximately 3,304 residents in 2004 (U.S. Census Bureau 2005a) and Kevin, Sunburst, and Sweetgrass.

The average family contains 3.1 individuals, and the average household size is 2.5 individuals. Approximately 71.2 percent are homeowners. About 14.7 percent of the houses in the county are vacant.

3.13.2.2 Economic Activity

Economic activity in the analysis area ranges from heavy reliance on agriculture to growing development in the education, health, and social services sectors. In MATL's March 2006 response to DEQ comments, employment and labor trend data compiled from the U.S. Department of Labor, Bureau of Statistics were presented for each of the counties within the analysis area (MATL 2006b). These data were compiled for the last 5 years, documenting the total labor force available, total employment, total unemployment, and the resulting unemployment rate (**Table 3.13-3**). In general, unemployment rates have been fairly steady over the last 5 years, with three counties (Cascade, Teton, and Toole) seeing a small decline (0.5 percent or more) in total unemployment. Higher unemployment rates in Glacier County are attributable to the disproportionately higher unemployment rate on the Blackfeet Indian Reservation, which in 2005 was reported to be 69 percent of the available tribal workforce (Bureau of Indian Affairs 2005). The unemployment rate for the county as a whole, which is the highest of the analysis area counties, is reported at 8 percent, though this has fluctuated from a high of 8.2 percent to a low of 6.9 percent over the last 5 years. Pondera and Chouteau counties saw a slight increase (less than 1 percent) in unemployment over this time period (MATL 2006b).

TABLE 3.13-3
EMPLOYMENT AND DATA TRENDS BY COUNTY, 2000 – 2005[a]

Year	Labor Force	Employment	Unemployment	Unemployment Rate (%)
Cascade County				
2000	38,287	36,386	1,901	5.0
2001	38,419	36,719	1,700	4.4
2002	38,411	36,776	1,635	4.3
2003	38,558	36,992	1,636	4.2
2004	39,209	37,566	1,643	4.2
2005[b]	40,474	38,697	1,777	4.4
Chouteau County				
2000	2,799	2,698	101	3.6
2001	2,723	2,629	94	3.5
2002	2,474	2,387	87	3.5
2003	2,518	2,437	81	3.2
2004	2,633	2,454	88	3.3
2005 [b]	2,694	2,590	104	3.9
Glacier County				
2000	5,715	5,248	467	8.2
2001	5,775	5,348	427	7.4
2002	5,585	5,199	386	6.9
2003	5,750	5,315	435	7.6
2004	5,942	5,466	476	8.0
2005 [b]	6,105	5,614	491	8.0
Pondera County				
2000	2,976	2,836	140	4.7
2001	2,892	2,771	121	4.2
2002	2,745	2,630	124	4.5
2003	2,771	2,641	130	4.7
2004	2,715	2,568	147	5.4
2005 [b]	2,764	2,612	152	5.5
Teton County				
2000	2,974	2,846	128	4.3
2001	2,926	2,815	111	3.8
2002	2,906	2,796	110	3.8
2003	2,949	2,840	109	3.7
2004	3,001	2,885	116	3.9
2005 [b]	3,047	2,931	116	3.8
Toole County				
2000	2,523	2,422	101	4.0
2001	2,429	2,346	83	3.4
2002	2,348	2,266	82	3.5
2003	2,538	2,453	85	3.3
2004	2,586	2,500	86	3.3
2005[b]	2,661	2,568	93	3.5

Notes:
[a] Reflects 2000 Census-based geography, new model controls, 2000 Census inputs.
[b] Average through Nov. 2005
Source: U.S. Department of Labor, Bureau of Labor Statistics, 2005.

Countywide earnings data by industry sector were available for 2001 through 2004 (**Tables 3.13-4 through 3.13-9**). In general, the data for each county indicated an increase in total wages across most sectors. However, Cascade County experienced a marked decrease (almost 50 percent) in total wages within the natural resources and mining sector (agriculture, forestry, and mining) between 2001 and 2004. The decrease is likely attributable to growth in other, more urban-related sectors such as the information and health, education, and social services sectors. Teton County experienced a substantial decline in wages associated with the manufacturing industry sector (40 percent) over the same time period but saw large increases in retail trade (83 percent) and in the professional, scientific, management, administrative, and waste management industry sector (almost 400 percent). Elsewhere, wages in the natural resources and mining sectors generally held steady or increased. Large increases in wages in this sector were realized in Glacier County between 2002 and 2004 (approximately 91 percent), where oil and gas exploration, as a subsector of the mining industry, increased by 150 percent from 2001 to 2004 (Montana Department of Commerce 2006).

TABLE 3.13-4
INDUSTRY SECTOR EARNINGS TRENDS – CASCADE COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	2,815	-49.55
Construction	63,118	+21
Manufacturing	32,166	+0.3
Wholesale trade	51,191	+18
Retail trade	103,637	+6.7
Transportation and warehousing, and utilities	34,264	+4.1
Information	23,985	+23.7
Finance, insurance, real estate, and rental and leasing	89,744	+19.4
Professional, scientific, management, administrative, and waste management services	74,368	+17.5
Educational, health and social services	224,140	+16.7
Arts, entertainment, recreation, accommodation and food services	50,432	+16.8
Other services (except public administration)	23,672	+14.5
Public administration	67,345	+21

Notes:
Source - US Department of Labor, Bureau of Labor Statistics 2005.

TABLE 3.13-5
INDUSTRY SECTOR EARNINGS TRENDS – TETON COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	1,263	+4.12
Construction	980	+68.38
Manufacturing	289	-40.17
Wholesale trade	4,459	+29.28
Retail trade	3,333	+83.23
Transportation and warehousing, and utilities	3,632	+21.55
Information	6,961	+15.38
Finance, insurance, real estate, and rental and leasing	2,698	+39.1
Professional, scientific, management, administrative, and waste management services	1,292	+396
Educational, health and social services	9,927	+22.4
Arts, entertainment, recreation, accommodation and food services	1,209	+3.6
Other services (except public administration)	483	-13.6
Public administration	3,242	+3

Notes:

Source - US Department of Labor, Bureau of Labor Statistics 2005.

TABLE 3.13-6
INDUSTRY SECTOR EARNINGS TRENDS – CHOUTEAU COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	1,765	+23.0
Construction	433	+42.43
Manufacturing	444	-5.7
Wholesale trade	1,678	+71.4
Retail trade	2,837	+11.65
Transportation and warehousing, and utilities	793	+25.28
Information	N/A	N/A
Finance, insurance, real estate, and rental and leasing	864	-42.32
Professional, scientific, management, administrative, and waste management services	N/A	N/A
Educational, health and social services	9,192	+5.62
Arts, entertainment, recreation, accommodation and food services	1,182	+32.51
Other services (except public administration)	233	+29.44
Public administration	2,769	+12.84

Notes:

Source - US Department of Labor, Bureau of Labor Statistics 2005.

N/A – Not Disclosed: Data do not meet Bureau of Labor Statistics or State agency disclosure standards

TABLE 3.13-7
INDUSTRY SECTOR EARNINGS TRENDS – PONDERA COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	748	-24.67
Construction	9,193	+14.88
Manufacturing	1,021	-23.7
Wholesale trade	3,117	+9.7
Retail trade	4,016	+15.43
Transportation and warehousing, and utilities	6,324	+9.03
Information	449	+39.44
Finance, insurance, real estate, and rental and leasing	1,908	+1.76
Professional, scientific, management, administrative, and waste management services	1,497	+6.4
Educational, health and social services	13,022	+4.48
Arts, entertainment, recreation, accommodation and food services	1,180	+21.65
Other services (except public administration)	523	-2.8
Public administration	847	+5.35

Notes:
Source - US Department of Labor, Bureau of Labor Statistics 2005

TABLE 3.13-8
INDUSTRY SECTOR EARNINGS TRENDS – TOOLE COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	4,287	+19.82
Construction	833	+33.28
Manufacturing	424	-6.2
Wholesale trade	2,759[a]	N/A
Retail trade	3,652	+33
Transportation and warehousing, and utilities	473	+1.94
Information	1,449	+54.3
Finance, insurance, real estate, and rental and leasing	2,087	+29.55
Professional, scientific, management, administrative, and waste management services	5,343	+27.8
Educational, health and social services	10,370	+20.34
Arts, entertainment, recreation, accommodation and food services	3,304	+47.3
Other services (except public administration)	373	-3.1
Public administration	8,130	+228.4

Notes:
Source - US Department of Labor Bureau of Statistics 2005.
[a] 2002 Data, No Data Available for 2004
N/A– Not Available: comparison data do not meet Bureau of Labor Statistics or State agency disclosure standards

TABLE 3.13-9
INDUSTRY SECTOR EARNINGS TRENDS – GLACIER COUNTY

INDUSTRY	Total 2004 Wages by Sector (in thousands)	Trend between 2001-2004 (percent change)
Agriculture, forestry, fishing and hunting, and mining	4,939	+90.62[a]
Construction	2,726	-5.05
Manufacturing	583	-15.87[a]
Wholesale trade	3,056	+29.66
Retail trade	8,102	+22.39
Transportation and warehousing, and utilities	3,081	-6.8
Information	309	+6.19
Finance, insurance, real estate, and rental and leasing	2,158	+13.04
Professional, scientific, management, administrative, and waste management services	2,195	+21.2
Educational, health and social services	27,113	+28.52
Arts, entertainment, recreation, accommodation and food services	12,640	+1.93
Other services (except public administration)	1,311	-13.8
Public administration	36,200	+11.47

Notes:
Source - US Department of Labor Bureau of Statistics 2005.
[a] – 2002 Data, No Comparison Data Available for 2001

Per capita personal income, or the amount of income that is received by a person from all sources, has generally increased for all of the counties within the analysis area (U.S. Department of Commerce 2006). For counties dependent on agriculture, increases or decreases in per capita income are typically attributable to the quantity and value of crops or livestock produced. For example, per capita income increased between 2001 and 2004 as a result of bumper crops of winter wheat and barley, particularly in Chouteau and Toole counties (**Table 3.13-10**).

TABLE 3.13-10
PER CAPITA PERSONAL INCOME TRENDS

County	Per Capita Personal Income – 2004	Percent Change in Per Capita Personal Income, 2003 - 2004
Cascade	$29,231	+5.9
Chouteau	$27,303	+13.6
Glacier	$20,637	+7.6
Pondera	$23,709	+4
Teton	$26,158	+6.6
Toole	$28,100	+12.3

Notes:
Source - Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, April 25, 2006.

Additional details regarding the social and economic activities within each of the counties located in the analysis area are provided in MATL (2006b) and summarized for each county below.

Cascade County

The economy of Cascade County is heavily influenced by the commerce and trade activities centered in and surrounding Great Falls, Montana's second largest city. This area provides the goods and services and other amenities drawn upon throughout the region. The largest private economic sector in the county is health care and social assistance, which accounts for nearly 24 percent of non-government employment. Another 14.2 percent of the labor force works in the retail trades. Malmstrom Air Force Base, located just to the east of Great Falls, is home to several thousand military personnel and their families and employs about 4.9 percent of the county's population (approximately 3,000 people). According to the USDA, there were 1,037 farms in Cascade County in 2002, a slight drop (1.2 percent) since the 1997 agricultural census (USDA 2004).

Median household income in Cascade County in 2003 was $34,471, or 100.1 percent of the state's median household income (USDA Bureau of Labor Statistics 2005). Approximately 13.9 percent of the county's residents lived below the poverty level during 2003 (U.S. Census Bureau estimates 2005b).

Property tax revenues made up over 48 percent of all county revenues in fiscal year 2004-2005. Public safety was the largest segment draw on the county budget. For fiscal year 2004-2005, Cascade County appropriated $2,356,823 to its road fund, $39,451 to its rural fire fund, $165,088 to its emergency medical fund, and $6,811,144 to the public safety fund (MATL 2006b).

Chouteau County

The largest economic sector in Chouteau County is agriculture, accounting for almost 33 percent of the industries within the county and occupying over 90 percent of the county land area (USDA 2004). Still, the number of farms decreased by about 3.9 percent between 1997 and 2002 (USDA 2004). Education, health and social services combined constitute the next largest industry sector, followed by retail trades.

Chouteau County received the most dollars of any Montana county in federal farm subsidies in 2003—over $33 million (Montana Department of Labor and Industry 2006). These subsidies reflect payments made for CRP lands, Loan Deficiency Payments, Crop Disaster Program, and the Livestock Compensation Program and reflected 20.6 to 32 percent of the reported per capita income in Chouteau County in 2003 (approximately $24,030). In 2004, the per capita income was $27,303, an increase of 23.6 percent from

2002 and 13.6 percent over 2003. Median household income in 2003 was $28,646, only 83.2 percent of the state average (USDA 2006). In 2003, 15 percent of the Chouteau County's population was estimated to be living in poverty (U.S. Census Bureau 2005b).

MATL provided DEQ with tables detailing county revenues and expenditures for the fiscal year ending June 2005 in its March 2006 submittal to the agency (MATL 2006b). In general, property tax made up nearly 50 percent of county revenues in fiscal year 2004-2005. Public works was the largest segment draw on the county budget. For fiscal year 2004-2005, Chouteau County appropriated $1,324,911 to its road fund.

Glacier County

Glacier County is home to the Blackfeet Indian Reservation and also encompasses the eastern portion of Glacier National Park. The presence of the park provides an important tourism draw to the area, which creates a higher degree of economic activity in the retail trade, accommodation and food services, and entertainment and recreation industry sectors. These sectors combined account for more than half the total private workforce, although government jobs, mostly tribal related, provide the greatest amount of employment (Montana Department of Labor and Industry 2005). Health care and social services are also a major industry sector (U.S. Census Bureau 2006), as is the oil and gas industry, which experienced a 150 percent increase in earnings from 2001 to 2004 (Montana Department of Commerce 2006). According to the USDA's 2002 census, 85.8 percent of the land in the county is in farms; although the total number of farms decreased slightly from 493 in 1997 to 472 in 2002.

Per capita personal income in 2004 in Glacier County was $20,637, an increase of 13.4 percent from 2002 (U.S. Department of Commerce 2006). Median household income in 2003 was $27,117 which was only 78.7 percent of the state average (USDA 2006). According to U.S. Census Bureau estimates, in 2003 25.6 percent of Glacier County's population was living in poverty. The only other county in the state with a higher poverty rate was Roosevelt County (U.S. Census Bureau 2005b).

Property tax made up nearly 38 percent of county revenues in fiscal year 2004-2005. Largest segment draws on the county budget include public safety, public works, and general government expenditures; all tapping between 28 to 30 percent of revenue. For fiscal year 2004-2005, Glacier County appropriated $926,559 to its road department fund, $1,124 to the Cut Bank Fire Department fund, and $495,242 to the ambulance fund (MATL 2006b).

Pondera County

Economic data from 2004 indicate that within Pondera County the largest economic sector was education, health, and social services, which employed 302 individuals that

year. A report on the economic impact of the health sector in Pondera County (Oklahoma State University 2005) indicated that the bulk of the health care workers (244) are employed by Pondera Medical Center. Retail trade was also a major sector, with approximately 280 employees reported (U.S. Census Bureau 2006). Agriculture was also a large industry within the county with 20.2 percent of individuals employed in that sector. Nearly 75,000 acres of land in Pondera County are irrigated cropland and 86.6 percent of the land is in farms (USDA 2004). Principal crops include winter wheat and barley.

In 2004, the per capita personal income in Pondera County was $23,709, an 8.4 percent increase since 2002 (U.S. Department of Commerce 2006). Median household income in Pondera County was reported to be $29,362 in 2003, or 85.2 percent of the state average (USDA 2006). In 2003, 17.6 percent of Pondera County's population was estimated to be living in poverty (U.S. Census Bureau 2005b).

Property tax made up nearly 50 percent of county revenues in fiscal year 2004-2005. Largest segment draws on the county budget include public works and general government expenditures. For fiscal year 2004-2005, Pondera County appropriated $925,355 to its road fund and $20,891 to its rural fire district fund (MATL 2006b).

Teton County

Based on the U.S. Census Bureau's 2004 county business patterns study, retail trade establishments employ the largest percentage of the workforce in the county, followed by the health care and social assistances (U.S. Census Bureau 2006). However, these statistics do not take into account those establishments without employee identification numbers, which may include some farms. Of all the counties in the Project area, Teton County is the only one actually to see an increase in the number of farms between 1997 and 2002 (from 625 to 700, or 12.5 percent increase). This area of Montana is known for its high quality winter wheat and barley production. Much of the barley produced in Teton County is grown under contract with Anheuser-Busch. Another prominent contractor in the area is General Mills (Chouteau Acantha 2004).

Per capita personal income in 2004 was $26,158. Median household income in 2003 was $30,844, or 89.5 percent of the state average (USDA 2006). During the same year, 13.7 percent of Teton County's population was living in poverty according to U.S. Census Bureau (2005b) estimates.

Taxes and assessments (including property tax) made up nearly 48 percent of county revenues in fiscal year ending 2004. Public safety was the largest segment draw on the county budget. For fiscal year 2004-2005, Teton County appropriated $787,037 to its road fund, $64,893 to its Fire Fee District, $15,000 to its rural fire fund, and $3,245 to the Choteau fire fund (MATL 2006b).

Toole County

The largest economic sector in Toole County was education, health, and social services. Retail trades comprise the second largest employment sector, followed by accommodations and food service. Almost 90 percent of the land area of the county is farmland. Of the 405 farms in Toole County in 2002, 200 were oilseed and grain farms and 110 grew sugar beets, hay, and other types of crops. The remaining farms and ranches were primarily dedicated to beef cattle ranching and other animal production. Oil and gas extraction is also a major economic activity in Toole County, with about 11 percent of total private wages. The county is also home to the busiest port of entry on the Alaska-Canada Highway between eastern Washington and central North Dakota (Montana Department of Labor and Industry 2005).

Per capita personal income in 2004 was $28,100, an increase of 23 percent just from 2002 (U.S. Department of Commerce 2006). Median household income in 2003 was $29,840 which was 86.6 percent of the state average (USDA 2006). According to the U.S. Census Bureau (2005b), an estimated 14.1 percent of Toole County's population was living in poverty in 2003.

Taxes and assessments (including property tax) made up about 39 percent of Toole County revenues in fiscal year 2004-2005, however intergovernmental revenues (state/federal) made up over 55 percent of county revenue that fiscal year. Largest segment draws on the county budget include public health and general government expenditures. For fiscal year 2004-2005, Toole County appropriated $910,275 to its road fund and $88,000 to its ambulance fund (MATL 2006b).

3.13.2.3 Local Resources

Local resources that were examined include emergency and medical services, law enforcement, and fire response. Resources such as housing and schools were not examined in detail because of the relatively low number of employees expected through the duration of Project construction, and the relatively short duration of activities occurring in a given locale make it unlikely that these resources would incur any measurable direct impacts. Service and retail providers that would experience impacts as a result of the construction and operation of the proposed Project or alternatives include lodging, restaurants, and gas stations. The likely principal communities that would serve project workers include Great Falls (Cascade County), Conrad (Pondera County), Cut Bank (Glacier County), and Shelby (Toole County). Each of these towns has lodging and dining options as well as grocers and gas stations.

Cascade County

Emergency and Medical Services: Benefis Healthcare provides care to approximately 225,000 people in a service area covering 15 counties in north-central Montana. Benefis Healthcare offers a full range of medical services, including a Level II Trauma Center. Facilities include 502 beds at its two campuses. Benefis also operates the Williams-Ario Regional Emergency and Trauma Center in Great Falls. This additional facility provides 19 emergency examination rooms and an additional seven non-urgent care rooms. The emergency department is staffed with nine board-certified or -eligible physicians. The Fast track program has four family nurse practitioners who treat non-urgent patients.

Flight services are available through Mercy Flight, which operates both helicopters and airplanes. Mercy Flight crews also respond on-site to bring patients from isolated areas or accident scenes to the Regional Emergency Center.

Law Enforcement: The Cascade County Sheriff's Office covers all areas within the county, with the exception of Great Falls. The Sheriff's office has a force of 34 officers. The City of Great Falls is covered by the City Police Department, with 82 officers and 65 patrol and support vehicles available to handle crime and provide educational services.

Fire Response: The Great Falls Fire Rescue consists of 65 uniformed firefighters, in addition to the Fire Chief, Assistant Chief, and several other staff. All suppression firefighters are certified EMTs, and 19 of them are also certified as paramedics. There are four stations in total. The stations combined have six 1,250-gallon-per-minute fire engines, a water tender, a snorkel truck, a rescue vehicle, and hazardous materials response equipment. Additional fire services in Cascade County include:

- Sun River Fire Service Area
- Vaughn Volunteer Fire Department
- Black Eagle Volunteer Fire Department
- Malmstrom AFB Fire Department
- Gore Hill Volunteer Fire Department
- Cascade Volunteer Fire Department

Chouteau County

Emergency and Medical Services: The Missouri River Medical Center (MRMC) in Fort Benton provides a seven-bed acute care hospital, emergency room, laboratory, and radiology department. The MRMC Emergency room is available 24 hours a day, 7 days a week, and is staffed by a registered nurse with a physician on call. MRMC

coordinates emergency services with Memorial Ambulance, Geraldine Ambulance, Benefis Healthcare, Mercy Flight, and Chouteau County.

Law Enforcement: The Chouteau County Sheriff's Office covers the towns of Big Sandy, Loma, Carter, Highwood, Square Butte, Geraldine, and all rural areas within Chouteau County. Fort Benton has its own city police department. The county sheriff's office has a force of nine full time officers and a reserve force of eight and is responsible for the investigation and prevention of crime, coroner duties, fire warden, civil process, bailiff, search and rescue, and emergency services response. Eight patrol cars and two suburbans are available for patrol (MATL 2006b).

Fire Response: There are eight volunteer fire departments within Chouteau County located in Fort Benton, Big Sandy, Geraldine, Highwood, Loma, Carter, Kness, and Elim. There are also five volunteer quick response units on call within the county for emergency and fire situations and three ambulance services. They are located in Fort Benton, Big Sandy, and Geraldine (MATL 2006b).

Glacier County

Emergency and Medical Services: Northern Rockies Medical Center in Cut Bank is a full service medical center with a 25-bed hospital. There are two fulltime physicians, one nurse practitioner, and several registered nurses at the hospital. There are three ambulances in the county (MATL 2006b).

Law Enforcement: The Glacier County Sheriff's Office covers all areas within the county, though Cut Bank has its own police department as well. Glacier County Sheriff's Office has 12 officers and seven reserves. There are 12 vehicles available for patrol. The City of Cut Bank Police Department employs six officers and has five vehicles available for patrol.

Fire Response: Cut Bank Volunteer Fire Department serves the City of Cut Bank and eastern Glacier County. The department has 25 volunteer firefighters, two city trucks, three rural trucks, and a rescue truck. The Cut Bank department also provides equipment and training to the Del Bonita Volunteer Fire Company. There are three rural trucks at this location, but a variable number of volunteer firefighters. Other departments in the county include the Browning Volunteer Fire Department and the Babb Volunteer Fire Department (MATL 2006b).

Pondera County

Emergency and Medical Services: Pondera Medical Center, located in Conrad, is a 20-bed acute care facility with a full range of services. There are five local physicians and five allied staff at the facility along with a variety of visiting specialists. Pondera Medical Center provides 24-hour emergency room coverage staff by a physician assistant and nurse practitioner, with physician backup. Pondera County Ambulance, staffed with emergency medical technicians, serves the Pondera County area with round-the-clock emergency services. The ambulance also provides transportation services for patients to other facilities, as necessary (MATL 2006b).

Law Enforcement: The Pondera County Sheriff's Office covers all areas of the county with the exception of Conrad and reservation lands. The sheriff's office has a force of eight fulltime officers and eight vehicles are available for patrol. Conrad is covered via the City Police Department, with a staff of five and two vehicles available for patrol. The Bureau of Indian Affairs handles law enforcement on reservation lands in the western part of the county.

Fire Response: There are four fire departments throughout Pondera County. These include the Brady Volunteer Fire Department, the Conrad Volunteer Fire Department, the Dupuyer Volunteer Fire Department, and the Valier Volunteer Fire Department. Combined, the four departments have 79 volunteer firefighters and 16 trucks. There is also one department located in Heart Butte that falls under the Bureau of Indian Affairs.

Teton County

Emergency and Medical Services: Teton Medical Center is a 10-bed critical access hospital and 36-bed extended care facility located in Choteau. The hospital provides 24-hour emergency services, with two rooms staffed by physicians, physician assistants, and nurses (MATL 2006b).

Law Enforcement: Teton County Sheriff's Office covers all of the areas within the county. The office has a force of nine, including the sheriff and under sheriff, and nine vehicles available for patrol.

Fire Response: There are five fire departments in Teton County. These include the Choteau Volunteer Fire Department, the Dutton Rural Fire Department, the Fairfield Rural Fire District, the Pendroy Volunteer Fire Company, and the Power Volunteer Fire Company (MATL 2006b).

Toole County

Emergency and Medical Services: Marias Medical Center is a combined 20-bed acute care hospital with nursery, maternity rooms, intensive care and critical care units, and a 68-bed skilled nursing facility. The emergency room has a physician on call 24 hours a day, and a surgeon and anesthestist are available, as needed. The facility has 15 RNs on staff. Four ambulances serve Toole County, including one that is housed in Sunburst (35 miles north of Shelby). There is a helipad at the hospital, and transfers to fixed-wing aircraft can be made at the airport just north of Shelby.

Law Enforcement: Toole County Sheriff's Office covers all of Toole County, including Shelby. The office has a force of 12 including the sheriff and six vehicles available for patrol.

Fire Response: There are two volunteer fire departments located within Toole County. The Shelby Volunteer Fire Department provides fire services for Shelby and southern Toole County and has 21 firefighters, three city trucks, and five rural trucks available. There is also a volunteer fire department that serves northern Toole County located in Sunburst. The department has 21 firefighters, two local trucks, one city truck, one water tender, and five rural trucks available.

3.13.3 Environmental Impacts

The socioeconomic impacts of Alternative 2 and the other action alternatives can be divided into (1) those that are an immediate result of project construction such as an influx of workers to the area to complete the project; (2) those related to operation of the proposed Project or alternatives, such as impediments to property owners' ability to make full and unimpeded economic use of their land and the addition of taxable property to state and county budgets; (3) those that may be anticipated from any corollary energy generation projects that would arise as a direct result of the presence of the proposed Project; and (4) those related to increased availability of power transmission options. Each of these types of effects is discussed in more detail below. Consequences more directly related to the changes that would occur to land use are discussed in more detail in Section 3.1.

3.13.3.1 Alternative 1 - No Action

Under the No Action alternative, neither the proposed Project nor any of the action alternatives would be constructed. Under this scenario, benefits to the counties in the analysis area from project-generated property taxes (see **Table 3.13-11**) and any benefits from the increased utilization of local goods and services would not occur. The employment opportunities that would be created during construction of the project would also not occur. Wind generation projects providing up to 600 MWs of electricity

potentially expected to develop as a result of the construction of additional transmission capacity (also described in Section 3.13.3.2) would not be built in the immediate future; revenue to the counties from these projects would not materialize, nor would the associated temporary and permanent employment opportunities.

Benefits of the No Action alternative would be felt by local land owners who would be able to utilize their land without incurring the inefficiencies caused by working around transmission structures. Conversely, local landowners would not receive easement damage payments for the structures.

3.13.3.2 Alternative 2 – Proposed Project

Construction Phase: Approximately 55 employees would be needed to complete the Project within a 6-month timeframe (MATL 2006b). The local impact of construction activity would vary depending on whether the local labor pool is used or whether workers come from out of the region. An unknown number of those workers would potentially be locally procured, while other jobs may require skills that are unavailable in the local labor pool (MATL 2006b). Where local workers are hired, there would be a small but positive effect to local area personal income figures for the duration of construction and potentially a reduction in unemployment in the analysis area's counties. According to MATL (2006b), about two-thirds of the hired construction workers would earn between $20 and $26 per hour and the project would provide in excess of 200,000 person-hours of construction employment. Assuming an average pre-tax hourly wage of $23, construction employment alone may conservatively generate $4.6 million over the construction time period of approximately 6 months. Earned wages from local workers would also be a source of income tax to state and federal taxing authorities, although this revenue may simply represent a replacement of similar revenue amounts generated by jobs previously held by project contractors.

Workers would be dispersed along the chosen alignment, rather than all concentrated in one area at one time (**Table 2.3-3**). For example, some workers would concentrate on digging and setting poles, while other crews would follow at a later time to string line. Similarly, line installation would also be dispersed. Secondary, or induced positive impacts would be created by the increase in use of the local retail business and service industries. However, given the few workers and dispersed nature of the construction activities associated with the proposed Project and action alternatives, it is likely that while the secondary impacts in any given town along the alignment would be beneficial, they would also be small and short term.

No direct impacts to the regional demographics are expected to occur as a result of the project since some of the workers are expected to already be residing in the area and others would be dispersed over the breadth of the Project area. The dispersed nature of the construction phase of the project also means that local goods and services such as

lodging facilities, restaurants, and gas stations would not be over-utilized to the degree that additional employment or additional facilities would be required to maintain pre-Project levels of service. Interviews conducted by MATL representatives with other community service workers at hospitals and law enforcement agencies also indicated that these types of services would not be unduly taxed by the influx of workers to the region (MATL 2006b). In addition, construction costs would ultimately be paid for by the energy shippers, not by Montana rate payers.

As described more fully in Section 3.1 (Land Use), the construction phase of the action alternatives would require limited access road development to reach otherwise inaccessible tower locations, overland driving to geographically accessible locations, and other activities related to structure placement. Temporary disruptions would occur to landowners, including brief inaccessibility to portions of their property in the right of way. Heavy equipment use along the right of way would create noise (discussed in Section 3.12), dust, and exhaust that may create a temporary nuisance to property owners working or residing close to the construction activities. Economic costs associated with such disruptions would be minimal due to the brief time required at each construction location.

Operation Phase: Portions of the proposed Project would be constructed on easements crossing irrigated and non-irrigated cropland and rangeland. Disruptions to farming practices would be expected to occur, including

- Decreases in farming efficiency caused by pole placement through fields;
- Increases in herbicide and pesticide spraying costs;
- Reduced coverage of aerial herbicide and pesticide resulting in increased weed pressure;
- Disruptions to GPS-driven equipment; and
- Reduced property values.

Because action alternatives are located in areas accessible by overland driving, few permanent access roads would be needed. However, where repeated compaction by heavy equipment occurs over fine-grained soils, previously productive cropland may require additional labor measures (such as tilling) to restore crop productivity to pre-construction levels.

Disruptions such as these would result in external costs associated with the creation of non-productive areas, extra diesel, pesticides and herbicides, modifications to GPS networks infrastructure (that is, repeater installation/modification and tractor modifications), additional stress and increased flight time during aerial applications of fertilizer and pesticides due to the presence of tower and conductor obstructions, and real or perceived impacts to property values (MATL 2006b). Few recent studies are available that quantify the cost of these types of infringements to property owners with agreed-upon accuracy; however, a study conducted by Ontario Hydro in 1979 showed

that the greatest financial effect of the towers comes as a result of the creation of a non-productive area, followed by time loss, crop damage, and material loss (Scott 1980). While the Ontario Hydro study attempted to quantify these losses, the values presented in the study are in terms of the averages between 1974 dollars for western Ontario and 1975 values for eastern Ontario. Therefore, it would be difficult to convert these monetary values to today's U.S. dollar value for the specific types of farm and ranchland uses in northern Montana . However, in terms of net impact, pole payments for each structure and annual payments to offset the increased cost of farming around the structures made by the Project proponent to the landowner would provide monetary mitigation for these economic losses. These payments also provide a new, predictable, and consistent revenue stream to landowners.

Property values depend on many factors, and it is not possible to assign definite figures to potential reductions in property values. A review of recent studies indicates that property values could decrease slightly, might not change, or may increase (EPRI 2003). Some reduction in property values due to the presence of the transmission line could occur as a consequence of the visual externalities of the towers, perceived health risks associated with high voltage, and effects on farming efficiency. Property devaluation would likely be more evident on properties immediately adjacent to the line, particularly those where residences are close, or the land is farmed. However, most of the MATL line extends across remote ranch and cropland. For these properties, devaluation based on visual impacts or perceived health risks would be negligible and any reduction in value due to the loss of productive land or farming efficiency would be at least partially off-set by negotiated compensation.

MATL proposes to use experienced operations and maintenance (O&M) contractors, possibly outsourced from other regionally-located utility companies, for ongoing maintenance of the transmission line once it is constructed. This may provide additional employment opportunities if the selected contracting company does not currently have the personnel resources to meet MATL's O&M requirements. The number of employees that would potentially be hired is unknown at this time; however, the estimated wages for such personnel are expected to be in the $25 per hour range (Pfister 2007). A small number of new residents working on the MATL project might move into the study area as a result of the transmission line.

In Montana, property tax is the primary source of funding for local governments. The Project would be centrally assessed (as a single unit) at 12 percent, then the revenue would be apportioned to different districts based on mileage of line within each district. Property taxes assessed on the Project would include the value of the line and in cases where MATL purchases rights of way, the property would also be included in the value (otherwise, the existing landowner continues to be responsible for property taxes on the land). Applicable mill levies would also be applied to the property taxes paid within each district. The approximate amount of property taxes potentially available to each

county within the analysis area was calculated based on an estimated value of $363,284 per mile and the approximate mileage of the proposed alignment and projected alternatives (Mullen 2006). As shown in **Table 3.13-11,** tax revenue from the line may generate from $121,688 in Chouteau County to a little over $1 million in Pondera County. Since property taxes associated with the transmission line are centrally assessed, they are tied to project revenue rather than the age of individual or collective infrastructure components. Therefore, as long as the line is utilized and maintained, no depreciation is expected to occur and the tax revenue benefits available to each county are expected to remain unchanged over time (Dodds 2006).

In addition to property taxes, the Project would also be subject to the Wholesale Energy Transaction Tax (WET), which is imposed by the State of Montana at a rate of $0.00015 per kilowatt hour (kWh). Revenue generated from this source is directed to the state's general fund, which is distributed to projects (primarily school districts) throughout the state (Dodds 2006).

Increased Availability of Power Transmission Options: The operation of additional energy transmission lines in Montana is expected to provide an additional avenue for transferring energy between Montana and Canada. Without this or other future transmission lines, for power to travel between Montana and Alberta, that power must first go through Idaho, Washington, and British Columbia. Energy shippers incur additional transmission tariffs that would not be incurred if the MATL line were constructed. At the time of this study, MATL had recently announced that the expected permitted firm capacity of the Project had sold out (MATL 2006b). Increased energy transactions along with more efficient paths of conveyance could increase the competition between suppliers and potentially result in lower rates to electricity consumers. However, the amount of transmission capacity that the MATL line would open up between Montana and Alberta would be relatively small compared to the total amount of interconnection capacity Montana currently has with other states. Therefore, it is likely that both potential increases in competition and potential decreases in electricity prices as a result of the proposed line would be limited or non-existent.

Conversely, PPL Montana is the largest supplier of Montana-consumed energy. Following the state's deregulation in 1997, FERC gave PPL Montana the authority to sell electricity at substantially higher market-based rates rather than the less-expensive cost-based rates. Thus there may not be any consumer benefit brought about by the proposed Project in terms of Montana electricity consumers receiving lower rates.

Corollary Energy Generation Projects: Additional socioeconomic impacts that would be incurred as a result of new energy generation projects enabled by the existence of the proposed MATL line would be similar to those described here for the MATL line. For example, each new project would include the beneficial impacts realized by local economies due to the presence of construction and operation workers moving to the

region and each project's potential utilization of local labor pools. These benefits would increase local employment opportunities and increase local economic transactions as these workers and their families draw upon service and commodity providers. Each new project would also create new facilities subject to state and local taxation, thus further increasing each county's tax revenue. Benefits may also be realized to the rate payer due to increased competition and abundant energy supplies that may become available as new wind generation facilities come on-line. However, each new generation facility would also require land commitments that could remove a small amount of land from production. The lease payments for wind sites are considered to be higher than the value of the land removed from crop and cattle production. These new projects also would provide a new revenue stream to landowners.

3.13.3.3 Alternatives 3 and 4 – MATL B and Agency Alternative

The socioeconomic impacts described above are essentially equal for all of the alternatives with the exception of differences in the estimated property tax revenue available to each affected county depending on the mileage of the line that would ultimately be constructed within each county's jurisdiction (**Table 3.13-11**).

3.13.3.4 Environmental Justice

Executive Order 12898 states that all federal actions must evaluate a project relative to minority and low-income populations to ensure that these groups are not disproportionately impacted by adverse health and environmental consequences of a proposed Project. The proposed Project requires permits from the federal government and must satisfy this directive.

MATL conducted an assessment of environmental justice issues in accordance with standard practices set forth by the U.S. EPA (1998) and provided the findings in their MFSA application to DEQ (MATL 2006b). Based on their findings, no specific minority or low-income populations are crossed within the Project analysis area. As presented in the application document, significant impacts for this project are assessed relative to three criteria:

- Criterion 1: An alternative is sited to disproportionately negatively affect low-income or minority populations;
- Criterion 2: An alternative disproportionately reduces the ability of low-income or minority persons to make a living;
- Criterion 3: Native American cultural or religious sites are irreparably damaged or destroyed.

TABLE 3.13-11
TAX BENEFIT ESTIMATES

	Alignment Length (Miles)	Value $/Mi.	Estimated Value in County (BxC)	Class 9 Tax Rate (Valuation Ratio): 12%	Taxable Value (DxE)	Avg. Rural Mill Levy	Property Tax (FxG)
Cascade							
Alternative 2	12.76	$363,284	$4,635,504	0.12	$556,260	0.50412	$280,422
Alternative 3	12.31	$363,284	$4,472,026	0.12	$536,643	0.50412	$270,533
Alternative 4	19.81	$363,284	$7,196,656	0.12	$863,599	0.50412	$435,357
Chouteau							
Alternative 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Alternative 3	10.21	$363,284	$3,709,130	0.12	$445,096	0.43959	$195,660
Alternative 4	0	$363,284	$0	0.12	$0	0.43959	$0
Glacier							
Alternative 2	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Alternative 3	37.34	$363,284	$13,565,025	0.12	$1,627,803	0.53745	$874,863
Alternative 4	40.56	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Pondera							
Alternative 2	45.69	$363,284	$16,598,446	0.12	$1,991,814	0.52162	$1,038,970
Alternative 3	44.44	$363,284	$16,144,341	0.12	$1,937,321	0.52162	$1,010,545
Alternative 4	52.01	$363,284	$18,894,401	0.12	$2,267,328	0.52162	$1,182,684
Teton							
Alternative 2	25.16	$363,284	$9,140,225	0.12	$1,096,827	0.4991	$547,426
Alternative 3	17.32	$363,284	$6,292,079	0.12	$755,049	0.4991	$376,845
Alternative 4	27.26	$363,284	$9,903,122	0.12	$1,188,375	0.4991	$593,118

Notes:
Sources: Mullen 2006
Montana Department of Revenue 2004

MATL's findings relative to Criterion 1, based on comparing U.S. Census block-level data (the smallest geographic unit for which the U.S. Census tabulates data), show that ethnic and economic demographics are relatively similar among the alternatives and between all of the alignments and the surrounding comparison communities with the exception of the Blackfeet Reservation to the west of the Project analysis area. The percentage of Native Americans on the Blackfeet Reservation and the poverty level are much higher than in the general comparison region. In addition, Heart Butte, which is in the region but not within the Project analysis area, is a low-income and minority community. High poverty levels in other parts of the Project analysis area, such as western Toole County, are not related to specific communities but rather to generally low-paying jobs in a dispersed rural environment. None of the alternatives negatively affect low-income and/or minority populations in a disproportionate manner to the surrounding communities or region; consequently, there is no significant impact relative to Criterion 1 (MATL 2006b).

MATL's findings relative to Criterion 2 show that employment in the Project analysis area is related to dispersed activities such as farming, ranching, or commuting to jobs in surrounding towns and cities. Construction of the transmission line could result in short-term employment opportunities for the local workforce. None of the alternatives would disproportionately reduce the ability of low-income or minority populations to make a living, resulting in no impacts relative to Criterion 2 (MATL 2006b).

Impacts to cultural and religious sites within the Project study area are described in Section 3.14. No impacts relative to Criterion 3 would occur as a result of the proposed Project or the other action alternatives.

3.14 Paleontological and Cultural Resources

3.14.1 Analysis Methods

Paleontological and cultural resources provide valuable information about the behavior of past plant, animal, and human populations and their environments. Paleontological resources are fossilized plant and animal remains that are rare and have scientific research value. Cultural resources include archaeological sites, historic sites, architectural properties, traditional cultural properties, districts, landscapes, structures, features, or objects resulting from human activity. Both resources are nonrenewable and irreplaceable, and, for state-owned land, Montana state law requires that inventory for and evaluation of these resources occur before they are impacted by ground disturbing activities or removed from state ownership.

Federal regulations that were considered for this analysis include the National Historic Preservation Act of 1966, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1977, the Native American Graves Protection and Repatriation Act of 1990, and Executive Orders relevant to cultural resources. State legislation considered includes the Montana Antiquities Act and the Montana Human Remains and Burial Site Protection Act.

Known prehistoric cultural resource sites (hundreds to thousands of years old) and historic sites (at least 50 years old) have been documented in the project area. The number and variety of sites increases through time due to population increases and the effects of immigration. Existing sources of information were consulted in order to analyze paleontological and cultural resources, as described below.

Information Resources

The Montana Antiquities Database maintained by the Montana State Historic Preservation Office (SHPO) in Helena was the primary source for information about specific cultural resource sites and paleontological localities in the project study area. The Cultural Resources Information System (CRIS) contains summary information about previously recorded resources by site type and township, range, and quarter section. The Cultural Resources Annotated Bibliography System (CRABS) contains listings of previous resource inventories by township, range, and section. A search for sites listed in the National Register of Historic Places was conducted through SHPO and on line through the National Park Service, as appropriate.

A variety of literature references including Frison (1991, 2001), Greiser (1984, 1994), Hanna (2003), Malone and Roeder (1976), Montana State Engineer's Office (1964), Montana Water Resources Board (1969), Schwantes (1996), Toole (1959), and Walker and Sprague (1998) were used in preparation of sections of this environmental review related to paleontology, prehistory, and history. Information from a Class I cultural resources inventory (Petersen and Ferguson 2006) was also incorporated.

Analysis Area

The analysis area for paleontological and cultural resources is at least 480 square miles with a research area extending 2 miles to either side of the proposed and alternative alignments (figures showing these alignments are provided in Chapter 2).

In the Great Falls area, the lacustrine basins and related features are interspersed with areas of nearly level to steep soils on terraces, fans, and benches mixed with strongly sloping to steep soils on dissected sedimentary bedrock plains and hills. From just north of the Cascade County line to the Canadian border, the analysis area crosses the undulating to strongly rolling topography of the Glaciated Missouri Plateau section of the Great Plains physiographic province. This part of the area is also interspersed with nearly level soils in lacustrine basins surrounded by strongly sloping soils on terraces, fans, and benches. The lush grasslands once found in the area during much of the prehistoric past provided sufficient food for large herds of bison, antelope, and deer, with elk found in or near forested areas closer to the mountains or in the river breaks. These animals were not only food sources, but also provided materials for clothing, tools, and shelter. Grizzly and black bear were likely common and there was a wide variety of game birds and migratory water fowl. Other plant resources would provide roots, bulbs, fruits, berries, greens, and leaves for eating, making teas, and for medicinal purposes. Stone material left behind by glaciers or exposed by erosional episodes was used for hide anchors on tipis, piled for use as cairns or alignments for animal drive lines, and worked into stone tools.

Cultivation of much of the analysis area for more than the past century has impacted many of the shallow prehistoric cultural resource sites such as tipi rings or campsites in areas of little soil development. Intact prehistoric sites can be anticipated in areas of deep spoils either on terrace or bench surfaces or in drainages where redeposited soils would protect them. Historic homestead, farm, or ranch buildings or foundations and related features or structures might be more visible in the agricultural areas.

3.14.2 Affected Environment

Paleontological Sites

A fossil is defined as the remains, trace, or imprint of a plant or animal that has been preserved in a geologic context. These fossils are grouped into categories including: trace, plant, invertebrate, fish, amphibian, reptile, dinosaur, bird, mammal, and vertebrate. A trace fossil (ichnofossil) is a track, trail, burrow, or tube formed by the activity of an animal. Coprolites, or fossilized dung, are also trace fossils. Fossilized plants occur as physical remains (petrified wood) or imprints (leaf impressions). Stromatolites (laminated algal mounds) and cyanobacteria (blue-green algae) are included in the plant category. Invertebrates are animals without backbones that inhabit marine, freshwater, and terrestrial environments, and are also found in the study area.

The geologic formation with the highest probability of containing fossils is the Two Medicine Formation. The only other formations with low to moderate probability of containing fossils include the Eagle, Kootenai, and Virgelle. The remaining formations or geologic types within the study area have little or no potential to contain fossils. Areas within the Two Medicine, Eagle, Kootenai, and Virgelle formations with potential to contain fossils primarily occur on steep exposed slopes above major river channels north from the Conrad area. In general, the distribution of fossils has not been determined at other locations within the Project study area since most of the Cretaceous rocks are covered by 1 to 15 feet of glacial deposits and no paleontological fieldwork is reported. However, the likelihood of encountering new fossil types of significance to the scientific community is thought to be low because of the low amount of disturbance to deeper layers.

Cultural Sites

Known historic site types in the analysis area likely include: exploration and overland migration sites such as trails (likely Native American in origin), river fords, wagon roads, encampments, or geologic/geographic landmarks; inscriptions including pictographs, petroglyphs, or tree carvings; transportation sites such as late nineteenth-early twentieth century roads, railroad engineered features (bridges, trestles, ballast, track and ties) and construction camps; isolated trapper cabins; homesteading, ranching, and farming sites such as residences (including foundations), outlying buildings and structures, cultural landscape elements (including fences, field/pasture patterns, stock ponds and dams, stock trails and river fords), irrigation structures, and artifact scatters; mining and mine related sites; and abandoned town sites including foundations and trash dumps.

Summary of Previously Recorded Data

A Class I review of previously recorded cultural resources and previous cultural resource inventories for the MATL analysis area indicates that there are known prehistoric and historic cultural resources in or near alternatives 2 and 3 (Petersen and Ferguson 2006). An additional Class I search for previously recorded cultural resources in sections containing Alternative 4 was conducted in November 2006. All information is summarized in **Table 3.14-1**. The searches are computerized searches of records maintained by the SHPO using township, range, and section legal descriptions. The resulting data indicate the presence or absence of cultural resources in a section but not necessarily on the alignment of a specific alternative.

TABLE 3.14-1
RESULTS OF CLASS I INVENTORY

Alignment	Consensus Determination of Eligibility	No Determination or Unknown Eligibility	Not Eligible (Determined by SHPO)
Alternative 2 Prehistoric Sites			
Tipi Ring Sites	24PN24	24TT1008 24PN21 24PN5 24GL55	24PN112
Buffalo Jumps	--	24GL348 24GL587	--
Cairn Sites	--	24GL1032	--
Historic Sites			
Historic Road/Trail	24CA416	24CA645 24PN83	--
Railroads	24GL191	--	--
Railroad/Stage routes	24PN114	24PN34	--
Bridges	--	24PN46	--
Homesteads/ Farmsteads/ Residences	--	24PN119	--
Irrigation Systems	24PN109, 24PN111	24PN88	--
Alternative 3 Prehistoric Sites			
Tipi Ring Sites	24PN24	24PN21 24GL55	--
Buffalo Jumps	--	24GL348 24GL587	--
Cairn Sites	--	24GL1032	--
Historic Sites			
Historic Road/Trail	24CA416	--	--
Railroads	24GL191	--	--
Railroad/Stage routes	24PN114	--	--

TABLE 3.14-1
RESULTS OF CLASS I INVENTORY

Alignment	Consensus Determination of Eligibility	No Determination or Unknown Eligibility	Not Eligible (Determined by SHPO)
Bridges	--	24PN46	--
Homesteads/ Farmsteads/ Residences	--	24PN82	24PN115 24PN116
Irrigation Systems	24PN87, 24PN109, 24PN111	--	--
Historic Oil Refinery	24PN117	--	--
Unknown Historic	--	24TT1006 24PN20	--
Alternative 4 - Segments			
Prehistoric Sites			
Tipi Ring Sites	--	24CA194 24CA195 24CA196 24TT1008 24PN773 24PN61	--
Lithic Scatter	--	24CA192 24CA193	--
Camp Site	--	24CA445 24CA494	--
Historic Sites			
Historic Road/Trail	24CA416	24PN83	--
Railroads	24GL191	--	--
Homesteads/ Farmsteads/ Residences	--	24CA190 24CA191 24CA199 24PN91 24PN95	--
Irrigation Systems	--	24PN551 24PN88	--
Historic Trash Dump	--	24PN62	--
Mining	--	24CA976	--
Historic Transmission Line	24CA1040	--	--

Note: -- No reported site

In total, nine sites, one prehistoric and eight historic, are eligible for the NRHP on the basis of consensus determination between the SHPO and a lead federal or state agency. Cascade County contains the eligible Rainbow Dam Road 24CA416, which is located in sections containing alternatives 2, 3, and 4. Site 24PN24 is an eligible tipi ring site along both Alternative 2 and Alternative 3 in Pondera County. Sites 24PN109 and 24PN111 are historic irrigation systems located in Pondera County intersecting Alternative 2 and 3. Two eligible sites located in Pondera County are an historic railroad (24PN114), along Alternative 2 and 3 and an historic oil refinery (24PN114) along Alternative 3. Site 24GL191 is the Great Northern Railroad; now part of the Burlington Northern-Santa Fe, located in Glacier County along alternatives 2, 3, and 4. While the exact route of the Lewis and Clark National Historic Trail through the analysis area has not been identified, it is known that it followed the Marias River and is a resource of concern.

3.14.3 Environmental Impacts

Paleontological Resources

As part of MATL's mitigation program, pre-construction reconnaissance would be conducted in areas where potential paleontological or fossil discovery exists. If found, fossil data would be recorded by trained professionals (with landowner permission). Under these conditions, the project may result in the beneficial impact of unknown, or little studied fossils being discovered (MATL 2006b).

Direct effects to paleontological resources from development projects such as MATL include earthmoving or ground clearing activities, blasting of bedrock for tower foundations or access roads, boring for geotechnical surveys or placement of guy wires, and pedestrian or vehicular traffic. Indirect effects of projects such as MATL include access to areas that were formerly not accessible. Access can lead to intentional damage to paleontological resources such as unauthorized collecting, theft, and defacement, and result in the loss of information and destruction of the resource. An unanticipated discoveries plan that addresses discovery of paleontological resources in high probability areas during construction would be developed prior to project implementation (see **Appendix F**).

Cultural Resources

Previous cultural resource inventories and/or recording of properties in the broader MATL study area resulted in no properties listed in the NRHP being located on any of the alternative alignments. A segment of one NRHP-listed property, the Mullan Road (24CA89), is reportedly located in a section adjacent to the southern end of Alternatives 2 and 3 on the Benton Lake National Wildlife Refuge. This cultural resource site has never been located and recorded on the ground. It is recommended that if either

alternative is selected the area be thoroughly reviewed for intact portions of the property.

The recommended treatment of either NRHP-listed or eligible cultural resource properties is avoidance, if at all possible, and protection. Many of the known, NRHP-eligible cultural resource sites within or crossed by the various alternatives are either limited in size or are linear sites. Direct impact to these sites can likely be avoided by adjusting the location of individual structures and roads.

Locations of Traditional Cultural Properties or potential locations identified by knowledgeable tribal members should be avoided. Traditional Cultural Properties or sacred sites are places that have traditional spiritual values for Montana Native people (Indian tribes or Indian religious practitioners) that are reverently dedicated to a person or object or event or activity and are secured against violation or infringement or interference.

In order to protect and preserve Indian religious practices, Executive Order 13007 and other laws and Executive Orders of the U.S. Government require that, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, agencies should accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners; avoid adversely affecting the physical integrity of sacred sites; and where appropriate, maintain the confidentiality of sacred sites.

In the MFSA application, MATL stated that during a meeting Blackfeet Tribal representatives stressed the need to evaluate the proposed Project's potential to impact traditional landscape and land use values. Inclusion of tribal monitors during cultural surveys and/or review of cultural resource findings by Tribal Historic Preservation Office (THPO) personnel were suggested to assist in appropriate treatment of prehistoric findings.

Cultural resource properties where the NRHP eligibility is unknown, has not been determined, or is unresolved can either be avoided, if possible, or subjected to sufficient investigation to determine or resolve eligibility.

If Alternative 2, 3 or 4 is selected, then unevaluated cultural resource properties along the alignment should be individually evaluated in terms of Project effect. In addition, an intensive cultural resource inventory of areas not previously inventoried to Montana SHPO standards would be necessary to comply with regulations in the Montana Antiquities Act, as amended (1995). Portions of a selected alternative along or within one-half mile of rivers, flowing streams, lakes, springs, or seeps should be considered high probability areas especially for prehistoric cultural resource sites. Such areas may also be more likely to contain historic sites, although intact homesteads may be more broadly distributed based on the system of patenting land in the late nineteenth and

early twentieth centuries. Certain topographic features, such as those conducive to buffalo jump sites or high points for observation, should also be considered likely areas to contain prehistoric sites.

Areas least likely to contain cultural resource sites or NRHP-eligible sites are those areas far from reliable water and those areas where food or tool making resources would not occur. While areas subjected to plowing for farming may be less likely to contain intact cultural resource sites, plowed areas of well-developed soil may still contain intact prehistoric cultural resources.

Direct effects to cultural resource sites from development projects such as MATL include earthmoving or ground clearing activities and pedestrian or vehicular traffic. There is the potential for visual impacts to above-ground resources, such as historic buildings or houses. Indirect effects of projects such as MATL include soil erosion from earthmoving activities and access to areas that were formerly not accessible. Access can lead to intentional damage to cultural resource sites such as looting and vandalism, including unauthorized relic collecting, theft, and defacement, and result in the loss of information and destruction of the resource.

An unanticipated discoveries plan that addresses discovery of artifacts or cultural resource sites during construction would be developed prior to project implementation (see **Appendix F**).

3.14.3.1 Alternative 1 – No Action

Under the No Action Alternative, the MATL project would not be constructed. Thus there would be no impacts to cultural resources or any Traditional Cultural Properties.

3.14.3.2 Alternative 2 – Proposed Project

The Class 1 cultural resource searches resulted in the identification of six previously recorded sites considered eligible for the NRHP in sections along Alternative 2. These sites include the Rainbow Dam Road, the Burlington Northern-Santa Fe Railroad, one other historic railroad, a large tipi ring site, and two historic irrigation systems. There are 13 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes four tipi ring sites, two buffalo jump sites, a prehistoric site consisting of stone cairns, two historic roads or trails, a railroad, a bridge, a homestead, and an irrigation system. There is one previously recorded tipi ring site that was determined not eligible for the NRHP.

3.14.3.3 Alternative 3 – MATL B

The Class 1 cultural resource searches resulted in the identification of seven previously recorded sites considered eligible for the NRHP in sections along Alternative 3. These sites include the Rainbow Dam Road, the Burlington Northern-Santa Fe Railroad, one other historic railroad, a large tipi ring site, an historic oil refinery, and two historic irrigation systems. There are nine sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes two tipi ring sites, two buffalo jump sites, a prehistoric site consisting of stone cairns, an historic bridge, a homestead, and two sites only described as historic. There are two previously recorded homestead or residence sites that were determined not eligible for the NRHP.

3.14.3.4 Alternative 4 – Agency Alternative

The Class 1 cultural resource searches resulted in the identification of three previously recorded sites considered eligible for the NRHP in sections along Alternative 4. These sites include the Rainbow Dam Road, an historic transmission line, and the Burlington Northern-Santa Fe Railroad. There are 20 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes six tipi ring sites, two lithic scatter sites, two prehistoric camp sites, an historic road or trail, five homesteads, two historic irrigation systems, one historic trash dump, and one historic mining site.

3.15 Visuals

3.15.1 Analysis Methods

Analysis Area

The visual resource analysis was developed using a resource analysis area 1 mile on either side of the proposed transmission line alternatives.

Information Sources

Visual resources refer to the natural and man-made features in the project site analysis area landscape and include cultural and historic landmarks, landforms of particular beauty or significance, water surfaces, and vegetation. Together, these features form the overall impression that a viewer receives of an area or its landscape character.

Data and information for this section were compiled and refined from a variety of sources and verified by ground reconnaissance by Montana Alberta Tie, Ltd. during July and August 2005. Additional ground reconnaissance was conducted during May 2006 by DEQ and Tetra Tech. Additionally, aerial photographs were used to validate, change, or add to existing CAMA residential location information. Some of this information was originally compiled by AMEC Earth and Environmental for the MFSA application (MATL 2006b) and confirmed for use in this analysis.

Visual environmental impacts were analyzed in part by using computer generated photographic simulations. Technical information about these photographic simulations is provided in **Appendix L**.

3.15.2 Affected Environment

Landscape Character

The Project area is located in the Northwestern Glaciated Plains ecoregion (Nesser and others 1997) and is characterized by level to gently rolling glaciated plains crossed by alluvial corridors of the Marias and Teton rivers and their tributaries. Both dryland cultivation and irrigated cropland are common throughout the Project area (Montana Environmental Quality Council 1972). This agricultural land base gives the landscape its characteristic and dominant patterns of linear strips of dryland cultivation and circular and rectangular shapes associated with irrigated fields. Field colors that change seasonally among greens, yellows, and browns accentuate these strong landscape patterns. Scattered parcels of rangeland and native grassland found in steeper coulees

and rough terrain throughout the Project area provide additional color and texture in the viewed landscape.

Alluvial floodplains of the Marias and Teton rivers provide more topographic relief and diverse vegetation than surrounding uplands and plains. Mature cottonwood stands, riparian undergrowth of willows, boxelder, and chokecherry, eroded rock formations on valley walls, and meandering river channels contribute to a higher scenic quality in these floodplain corridors. In addition to these alluvial corridors and rivers, area lakes such as Benton and Hay lakes and Black Horse Lake, which is ephemeral, provide another type of water feature in the Project area. Scattered prairie potholes and wetlands dominated by trees, shrubs, emergents (cattails, bulrush), mosses, or lichens are also found in the Project area.

The cultivated and rural landscape provides the dominant cultural setting for the Project area. Rural farms and ranches dot the landscape, increasing in density where irrigation is present. Developed commercial and residential settings are found at small communities like Power, Dutton, and Brady, and the larger communities of Cut Bank and Conrad. Great Falls, at the southern edge of the Project area, is the only urban setting. Visual linear elements, including Interstate 15, state and local roads, railroads, and transmission lines crisscross the region, providing transportation and energy links for residents and commercial use. Other cultural modifications include the scattered oil and gas fields in the northern portion of the Project area and radio towers near Cut Bank and Great Falls. With the visual dominance of dryland and irrigated cultivation throughout the Project area, scenic integrity is high. Although cultural modifications and industrial development are present and visible in typical views, these modifications are typically subordinate to the predominant agricultural landscape.

Views are typically expansive throughout the entire Project area, extending across rolling uplands and plains to the Rocky Mountain Front and island ranges such as the Sweet Grass Hills and Highwood Mountains. Only in the alluvial valleys of the Teton and Marias rivers, their tributaries, and in steep coulees with some degree of topographic relief do views become more enclosed and limited.

Landscape Rating Units and Scenic Quality

The analysis area has been subdivided into landscape units for rating purposes. The rating areas (provided below) were delineated on a basis of: (1) like physiographic characteristics; (2) similar visual patterns, texture, color, variety, and other features; and (3) areas that have similar impacts from man-made modifications.

The scenic quality of each of the landscape units is provided at the end of each unit description. Scenic quality is a measure of the visual appeal of a tract of land or scenic quality rating unit. Scenic quality rating units can be assigned an A (outstanding), B

(above average), or C (common) rating based on the apparent scenic quality, which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. No Class A areas are present. Those areas classified as Class B are shown on **Figures 3.15-1, 3.15-2,** and **3.15-3**.

Alluvial Corridors
This unit constitutes narrow strips of land following coulees, creeks, and major rivers crossing the visual analysis area. The unit is moderately diverse in terrain, vegetation, and water features. Corridors along coulees and creeks in the analysis area are designated as Class C. The Marias River corridor and the Teton River corridor are designated as Class B due to expansive floodplains, diverse vegetation patterns, river meanders, and topographic relief present in the setting.

Wetland Areas
Wetlands found in the visual analysis area include:

- permanently flooded lakes and reservoirs, and intermittent lakes;
- wetlands found along creek channels and coulees and in association with prairie potholes; and
- wetlands that have natural or artificial channels and periodically or continuously flowing water such as the permanently flooded river channel bottoms associated with the Marias and Teton rivers.

Figure 3.6-1 shows the location of all mapped wetlands within the MATL Project study area. Most wetlands provide diverse vegetation and have low landform diversity and are designated as Class C. The wetlands associated with the Marias and Teton rivers are designated as Class B.

Rims, Ridges, and Buttes
Several rims, ridges, and buttes occur in the Project study area. Prominent features include Lookout Butte, Abbott Ridge and Trunk Butte south of Cut Bank, West Knob and East Knob north of the Teton River in Chouteau County, Teton Ridge, and the Sun River/Missouri River Rim in the southern Project study area. These features are designated Class C because they offer less vegetation diversity than the Class B areas shown on **Figures 3.15-1**, **3.15-2**, and **3.15-3** and little visual variety.

N

0 4 Miles

Dutton

Woods Crossing

Power

Benton Lake National Wildlife Refuge

Vaughn

Great Falls

15

87

RS

FIGURE 3.15-1 LOCATIONS OF VISUAL IMPORTANCE SOUTH

LEGEND

- HOUSES WITHIN 1/4 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/4 AND 1/2 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/2 AND 1 MILE OF ANY ALTERNATIVE
- LEWIS AND CLARK CAMPSITES
- RECREATION SITES
- LEWIS AND CLARK TRAIL
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- VISUAL QUALITY CLASS B AREAS
- BENTON LAKE NATIONAL WILDLIFE REFUGE
- LANDS MANAGED BY MT DEPT. FISH, WILDLIFE AND PARKS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-1_MATL_visual_mpacts_south_part_012007.mxd

Shelby
Valier
Ledger
Conrad
Brady
Collins
Dutton
2
15
44RS
N
0
4
Miles

FIGURE 3.15-2
LOCATIONS OF VISUAL IMPORTANCE MIDDLE

LEGEND

- HOUSES WITHIN 1/4 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/4 AND 1/2 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/2 AND 1 MILE OF ANY ALTERNATIVE
- LEWIS AND CLARK CAMPSITES
- RS RECREATION SITES
- LEWIS AND CLARK TRAIL
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- VISUAL QUALITY CLASS B AREAS
- BENTON LAKE NATIONAL WILDLIFE REFUGE
- LANDS MANAGED BY MT DEPT. FISH, WILDLIFE AND PARKS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-2_MATL_visual_impacts_middle_part_012007.mxd

N

0 4 Miles

Sunburst

Kevin

Santa Rita

RS

Cut Bank

Ethridge

Shelby

Valier

FIGURE 3.15-3 LOCATIONS OF VISUAL IMPORTANCE NORTH

LEGEND

- HOUSES WITHIN 1/4 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/4 AND 1/2 MILE OF ANY ALTERNATIVE
- HOUSES BETWEEN 1/2 AND 1 MILE OF ANY ALTERNATIVE
- LEWIS AND CLARK CAMPSITES
- RS RECREATION SITES
- LEWIS AND CLARK TRAIL
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- ALT2 - ALIGNMENT
- ALT3 - ALIGNMENT
- ALT4 - ALIGNMENT
- VISUAL QUALITY CLASS B AREAS
- BENTON LAKE NATIONAL WILDLIFE REFUGE
- LANDS MANAGED BY MT DEPT. FISH, WILDLIFE AND PARKS
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-3_MATL_visual-impacts_north_part_012007.mxd

Uplands and benchlands
Uplands and benchlands comprise the majority of the Project study area. Benchlands are characterized by gently sloping terrain, expansive views, and irrigated cropland use. They occur predominantly in the center of the Project study area between the Marias River and Pondera Coulee. The remainder of the Project study area constitutes rolling uplands with a fairly uniform landscape of gently sloping wheat fields and grassland. These landscapes are designated Class C.

Existing Inventories

Federal and state land managers and local/county officials have not developed maps that establish an inventory of scenic attractiveness, distance zones or concern levels, scenic classes, and visual absorption capability for any portion of the Project study area.

Travel Routes

Travel routes include the primary and secondary roads shown in **Figures 3.15-1**, **3.15-2**, and **3.15-3**.

3.15.3 Environmental Impacts

Distance Zones and Visual Influence Zones

Distance zones were established based on thresholds for visual perception of form, texture, color, and line. These visual criteria change as distance from a viewpoint increases. Detailed elements on the landscape tend to become less obvious and detailed at longer viewing distances. Elements of form and line become more dominant than color and texture at longer viewing distances. Four distance zones were established:

- Immediate Foreground (0 to 0.25 mile) — The immediate foreground is the dominant view threshold. Details are easily perceived and obvious. Changes may dominate the landscape.
- Foreground (0.25 to 0.5 mile) — The foreground is the viewed area in which details are perceived and obvious, though less so than the immediate foreground.
- Middleground (0.5 to 1 mile) — The middleground is the zone where details of foliage and fine textures are less perceptible. Vegetation begins to appear as patterns. Form and line are more dominant visual elements.
- Background (1 to 3 miles) — The background is the portion of the landscape where texture is weak and landform becomes the most dominant element.

Impact Types and Levels

Most visual impacts are direct and long term. The major impact concern assessed by the visual resources study is the potential for a decline in aesthetic quality. Visual impact types evaluated include the following:

- Effects on scenic quality
- Effects on views from residential, commercial, institutional, and other visually sensitive land uses (existing and planned)
- Effects on views from travel routes
- Effects on views from established, designated or planned park or recreation areas
- Visual contrast resulting from different structure types and/or materials, and construction of new access trails

Determination of potential impacts and levels was based on assessing: 1) physical contrasts or landscape changes that would result from the project and 2) the degree of visibility that the project would have from each sensitive land use or scenic area (key observation points). Visibility levels for key observation points were determined by assessing viewer sensitivity, distance from the proposed project, and duration of views. The impact levels for areas with a current non urban area land use are described below. **Table 3.15-1** provides a summary of the impact levels for various observation points.

Major Impact – A high level of impact would result if the construction and operation of the transmission line would potentially cause substantial adverse change to viewers at residential and designated recreation sites or result in substantial and noticeable landscape alteration in areas of above average or outstanding visual quality. Generally, structures within the immediate foreground and foreground (½ mile) of residences, immediate foreground of recreation sites, or within areas of Class B scenic quality would result in a major impact. Structures within the immediate foreground or foreground of primary use travel corridors would result in a major impact.

Minor Impact – A minor level of impact would result if the construction and operation of the transmission line would potentially result in a noticeable landscape alteration in areas of average visual quality to viewers at residences, designated recreation sites (including the Lewis and Clark trail corridor), or along travel corridors. Generally, structures within the foreground (¼ to ½ miles) of recreation sites and within the middleground (½ to 1 mile) of residences would result in a minor impact. Structures within the middleground of primary use travel corridors would result in a minor impact.

Very Minor Impact – A very minor impact is the result of a small degree landscape alteration in areas of average or common visual quality. Views of the transmission line within the middleground and background of recreation sites, within the background of primary use travel corridors, within the background of residences, or within middleground and background of secondary use travel corridors would result in a very minor impact.

Residences, recreation sites, travel corridors, and areas with Class B scenic quality within 1 mile of Alternatives 2 through 4 are shown in **Figures 3.15-1** through **3.15-3**. The remainder of the natural landscape in the Project study area – including uplands, benchlands, rims, ridges, buttes, and wetlands – has generally lower landscape and viewer sensitivity.

TABLE 3.15-1
VISUAL IMPACT LEVELS FROM VARIOUS OBSERVATION POINTS[a]

Observation Points[a]	Immediate Foreground (0 – ¼ mile)	Foreground (¼– ½ mile)	Middleground (½ - 1 mile)	Background (> 1 mile)
Residential	Major	Major	Minor	Very Minor
Recreation	Major	Minor	Very Minor	Very Minor
Travel – Primary Roads	Major	Major	Minor	Very Minor
Travel – Secondary Roads	Minor	Minor	Very Minor	Very Minor

Notes:
[a] A transmission line going through a Class B scenic quality area would be a major impact.

3.15.3.1 Alternative 1 – No Action

There would be no additional visual impacts under the No Action alternative.

3.15.3.2 Alternatives 2, 3, and 4 – Action Alternatives

Information on the visual impacts from various observation points is provided in **Table 3.15-2**. The number of area residences, recreational sites, and class B scenic areas that fall within the immediate foreground, foreground, and middleground of each alternative centerline is provided in this table. In addition, the miles of major highways that fall within the immediate foreground, foreground, and middleground of each alternative centerline are provided. **Figures 3.15-1, 3.15-2**, and **3.15-3** provide a visual overview of the data provided in **Table 3.15-2**.

TABLE 3.15-2
COMPARISON OF DISTANCE ZONES FROM VARIOUS OBSERVATION POINTS[a]
Action Alternatives 2, 3, and 4

Alternative	Number of Residences (Points)			Recreation – General[b] (Point)			Recreation - L & C Trail (Lineal Mileage)			Travel Corridor[c] (Lineal Mileage)		
Miles	0 to 1/4	1/4 to 1/2	1/2 to 1	0 to 1/4	1/4 to ½	1/2 to 1	0 to 1/4	1/4 to 1/2	1/2 to 1	0 to 1/4	1/4 to 1/2	1/2 to 1
Alternative 2	30	60	91	1	2	NA[d]	7.94	3.39	NA	3.3	2.8	6.3
Alternative 3	34	71	124	0	3	NA	7.72	2.3	NA	3.7	3.9	8.2
Alternative 4	20	45	111	0	0	NA	6.51	2.85	NA	2.7	2.3	5.3

Notes:
[a] All action alternatives would cross the Marias River and Teton River, which are Class B scenic areas.
[b] Does not include the conservation easement located north of the Missouri River at Great Falls switch yard (Lewis and Clark Greenway Conservation Easement).
[c] Interstate 15 and U.S. Highways 2 and 87
[d] NA = Not available

Residential Areas – Long Term

Residences are located within the immediate foreground and foreground of the centerline of each action alternative. As **Table 3.15-2** indicates, Alternative 4 would have the least number of residences (65) within ½ mile. Alternative 2 would have the second least (90). Alternative 3 would have the highest number of residences within ½ miles (105). As a result, the overall long-term impact for residences that would be classified as a major impact would be the highest for Alternative 3 and the lowest for Alternative 4. The long-term impact for residences that would be classified as minor (within ½ to 1 mile of an alternative centerline) would be highest for Alternative 3 (124 residences) and lowest for Alternative 2 (91 residences). No residential clusters, including Hutterite colonies, are located within the immediate foreground or foreground of any of the alternatives. One Hutterite colony is located within one mile of Alternative 2.

Recreation Areas – Long Term

All three action alternatives would cross the Lewis and Clark National Historic Trail and the Teton and Marias river corridors. All action alternatives would also be within the foreground of the Missouri River Corridor and several developed recreation areas near Great Falls including Giant Springs State Park, the Lewis and Clark Interpretive Center, and the Lewis and Clark Heritage Greenway. Alternative 2 crosses to the south and west of the Great Falls Shooting Sports Complex located north of Great Falls; Alternative 3 crosses to the west of the complex. Both Alternatives 2 and 3 cross within the foreground of Benton Lake National Wildlife Refuge. Other recreation areas considered, but not within the foreground, include wildlife production areas, research natural areas, and other sporting venues/complexes (for example, golf courses, race tracks, rodeo arenas, city parks) located along alignment alternatives near Cut Bank, Conrad, and Great Falls. Although many recreational areas in the Great Falls area would be within the foreground of the proposed transmission line, the proposed transmission line would be an additional line in a setting with many transmission lines and a substation. The visual effect of an additional line would be incremental.

As shown in **Table 3.15-2**, Alternative 4 would not have any recreational sites within ½ mile of the alignment. Alternatives 2 and 3 would each have three recreation sites within ½ mile; however, one site (Morony entrance to the Great Falls Shooting Sports Complex) would be less than ¼ mile from Alternative 2 only. A recreational site within ¼ mile is classified as a major impact.

Travel Routes – Long Term

Major travel routes that were considered include: Interstate 15 and U.S. Highways 2 and 87. Each of these highways would be crossed by each action alternative. The action alternatives differ slightly in the lineal miles of proposed alignment that would be within ½ mile of these major travel routes. Alternative 2 would have 11.3 miles within ½ mile, Alternative 3 would also have 11.3 miles within ½ mile, and Alternative 4 would have 9.4 miles (**Table 3.15-2)**. A transmission line within ½ mile of a major travel route is classified as a major impact.

Two computer generated visual simulations were developed showing the proposed line looking northwest from Montana State Highway 44, also known as Bootlegger Trail (see location map **Figure 3.15-4**). Though not a high volume road (major travel route), this viewpoint on Bootlegger Trail is typical of views from secondary roads. One view incorporates an H-frame power line (**Figure 3.15-5**), and one view incorporates a monopole power line with a typical structure height of 68 to 86 feet and a ruling span of 475 feet (**Figure 3.15-6**). MATL is also considering use of monopole structures that would have a typical height of 85 to 99 feet and a ruling span of 790 feet. While the span length of the taller monopoles would more closely approximate that of H-frame structures, their increased height would make them more visible.

Visual impacts on all major travel routes would be comparable for all action alternatives with major impact levels for the immediate foreground and foreground viewing areas. The MATL 230-kV transmission line would cross secondary roads seven times under Alternative 2, seven times under Alternative 3, and six times under Alternative 4. Visual impacts on all secondary road crossings would be minor.

Landscape Alteration – Long Term

The visual contrast of the proposed transmission line would be based on varying levels of potential landform and vegetation alteration that would result from construction. Landform contrast would result where access roads and pads for structure erection are constructed in hilly or steep terrain. Hillside benching, exposure of subsoil, and erosion scars from project construction in steeper terrain could modify existing topography and soils, resulting in visual contrast that is long term. These effects are more likely to occur on steeper slopes near the crossings of the Marias and Teton rivers, compared to surrounding uplands and plains. However, the transmission line structures would be located so that no roads need to be constructed over the edge of cliffs along the Marias and Teton rivers. **Figure 3.15-7** shows a computer generated visual analyses of an H-frame power line crossing the Marias River. Based on the crossing of rivers corridors with Class B scenic quality, the potential impact for all action alternatives would be major.

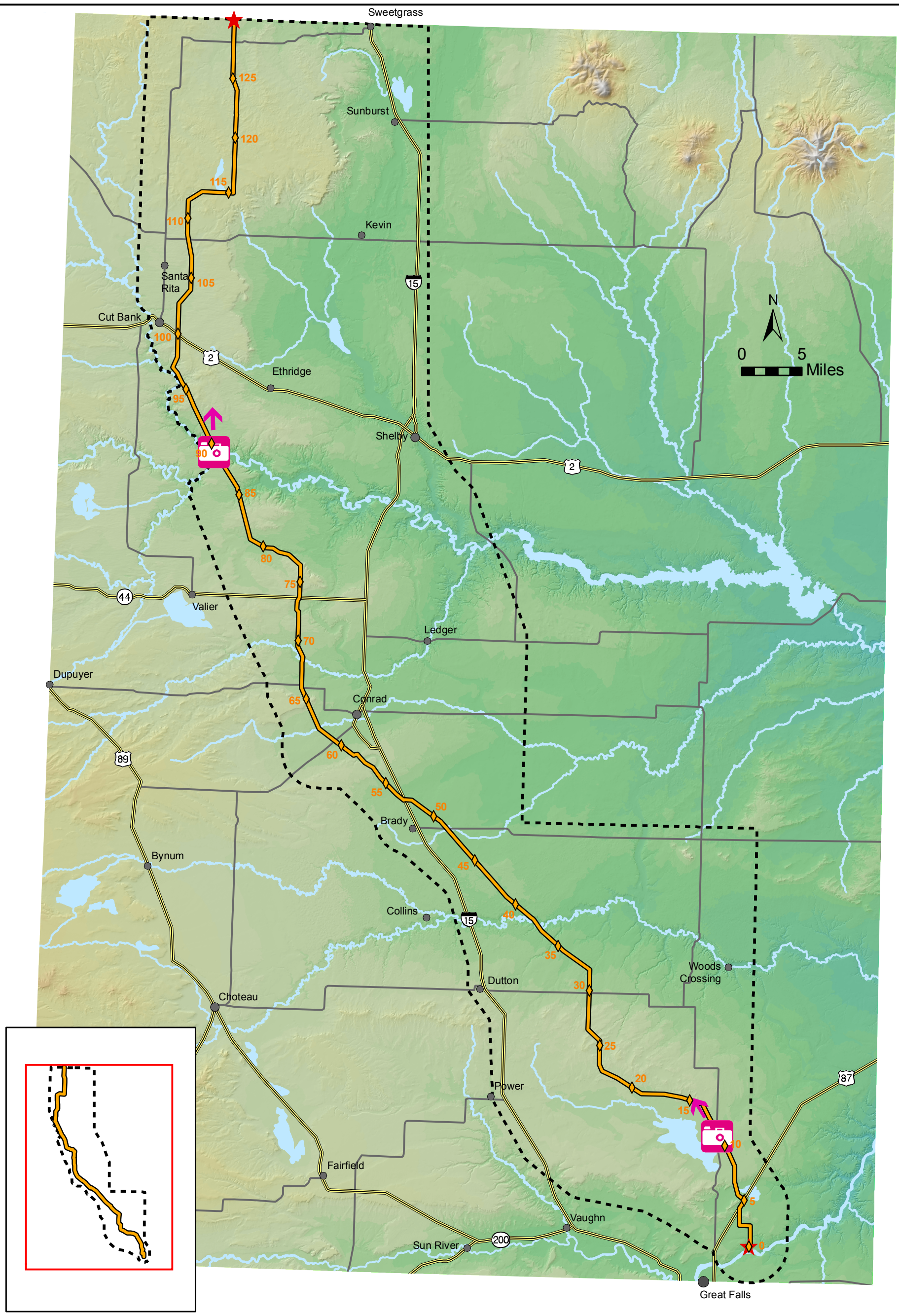


FIGURE 3.15-4
VISUAL SIMULATION LOCATIONS

LEGEND

- ALTERNATIVE 2 - ALIGNMENT
- MILEPOSTS
- VISUAL SIMULATION POINTS WITH CAMERA ANGLE
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

NOTE:
ALT = ALTERNATIVE

GIS map by Ed Madej -TTEMI-HE Fig3_15-4_MATL_Visual_Simulation_Locations_012007.mxd



FIGURE 3.15-5
PROPOSED MATL POWERLINE
BOOTLEGGER TRAIL
VISUAL SIMULATION
(Lat/Long: 47.679944, -111.283055 - 05/31/06 10:00 a.m.)



FIGURE 3.15-6
PROPOSED MATL POWERLINE
BOOTLEGGER TRAIL - Agency Alt.
VISUAL SIMULATION
(Lat/Long: 47.679944, -111.283055 - 05/31/06 10:00 a.m.)

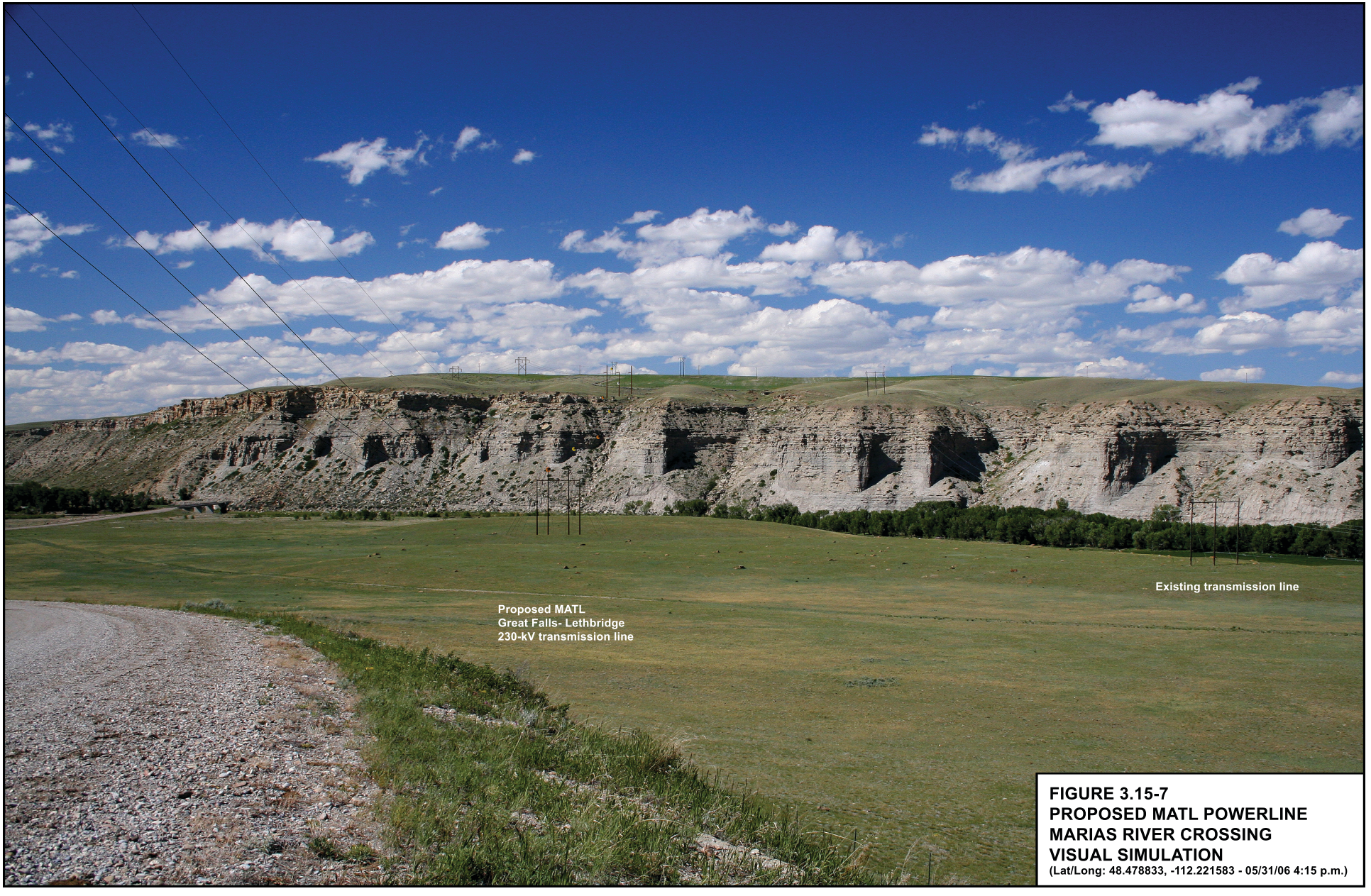


FIGURE 3.15-7
PROPOSED MATL POWERLINE
MARIAS RIVER CROSSING
VISUAL SIMULATION
(Lat/Long: 48.478833, -112.221583 - 05/31/06 4:15 p.m.)

Successful implementation of reclamation and revegetation efforts and the avoidance of dense riparian vegetation at the proposed river crossing would decrease the impact to minor levels.

Vegetation contrast is a function of existing cover type (riparian forest, grassland, or agricultural cropland) and the amount of clearing needed for line construction and maintenance. Higher levels of vegetation contrast would result where woody riparian growth is removed from the right of way, structure sites, and access roads. This effect can be long term where mature trees, windbreaks, and other woody vegetation are trimmed or removed for line operation over the life of the project.

Visual Impacts — Short Term

In agricultural cropland, vegetation would be removed for one growing season as structures are erected and construction traffic uses access roads. This effect would likely be short term for all action alternatives as crops would be restored in the following year.

Visual Resource Mitigations

To minimize adverse environmental impacts to visual resources from Alternative 2 and address local visuals issues in specific places, DEQ identified several potential mitigation realignments that are described by segments A1, A2, B1, B2, C1, C2, D, and E in **Appendix A.** The realignments that would mitigate visual impacts on a local scale are:

- Segment D - Belgian Hill Realignment
- Segment E - South of Cut Bank Realignment

A description of these realignment segments and the agency's preliminary analysis of their environmental impacts are presented in **Appendix A**.

3.16 Electrical Transmission System Operation and Reliability

This section describes the affected transmission system as it is currently configured and managed, and how reliability could be affected by the Project. This analysis was based, in part, on the results of a system feasibility study (ABB Consulting 2005) and the NorthWestern Energy MATL System Impact Study (Appendix I to the MATL application). Additional data and information for this section were compiled and refined from several sources including the MATL application for certification (MATL 2006b) and information contributed by DEQ economist (Blend 2007).

Prior to issuing a Presidential permit, DOE will prepare a separate reliability determination. At the time this document is published, information on which to base the DOE decision is preliminary.

3.16.1 Existing Transmission System

The North American transmission grid moves electricity from power-generating facilities to customers using a transmission system coordinated by the North American Electric Reliability Council (**Figure 1.1-2**). NERC's mission is to ensure that the bulk electric system in North America is reliable, adequate, and secure. NERC's primary role is to set standards for the reliable operation of the bulk electric system and monitor and enforce compliance with reliability standards (NERC 2007). NERC is composed of eight regional reliability councils formed in response to national concern regarding the reliability of the interconnected bulk power systems, the ability to operate these systems without widespread failures in electric service, and the need to foster the preservation of reliability through a formal organization (NERC 2007).

Montana is located primarily within the western grid under the authority of the Western Electricity Coordinating Council (WECC). The WECC region is the largest and most diverse of the regional councils. WECC's service territory extends from Canada to Mexico and includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 western states in between (**Figure 1.1-2**). The WECC mission is to support efficient competitive power markets, assure open and non-discriminatory transmission access among members, and provide a forum for resolving transmission access disputes (WECC 2007). There is currently no direct power transmission connection between Alberta and Montana (**Figure 1.1-2**).

Transmission Capacity

Owners of transmission lines sell rights to use lines on a long-term firm basis, a long-term non-firm basis, or a short-term basis. "Firm" transmission service is a contractually established priority right to transmit a given amount of energy for a given period of time. "Non-firm" service is typically reserved and scheduled on an as-available basis and is subject to curtailment or interruption. An agreement must be in place between a shipper and an owner of a line before any power can be transmitted over the western grid. Under WECC requirements, the owner of a line must determine whether the line has available capacity before an agreement can be entered into. The available transmission capacity is calculated by subtracting contracted uses from the total rated line flow capacity. The transmission path can be described as congested if (1) no rights to use it are for sale, (2) it is fully scheduled and no firm space is available, or (3) the path is fully loaded to its flow capacity (DEQ 2004).

Electricity moving across the western grid does not necessarily follow contracted paths. Rather it flows along the paths of least resistance. Therefore, before a new transmission line is added to a grid, operators of the grid conduct studies to ensure that new power does not overload other lines and substations on the grid. In the case of the proposed MATL line, these studies are overseen by WECC.

Montana's Electricity Generation and Transmission System

Except for several rural electric cooperatives and Montana Dakota Utilities customers, Montana's residential and commercial customers receive most of their contracted electricity from generation facilities located in Montana (DEQ 2004).

Most of Montana's electric generation is owned by private utilities or by the federal government through the U.S. Army Corps of Engineers or the Bureau of Reclamation. The Bonneville Power Administration (BPA) and WAPA market hydropower from federal dams in Montana. PPL Montana is the largest supplier of Montana-consumed energy, owning both hydroelectric and coal-fired generation. PPL Montana's hydroelectric generation facilities are regulated by the Federal Energy Regulatory Commission (FERC).

Montana has just over 5,000 MW of electrical generation capacity within its borders, most of it coal-fired and hydroelectric power. From 1999 to 2003, Montana's electric generating plants produced an average output of about 3,000 average megawatts (aMW) (DEQ 2004). During that same time period, just over half of Montana generation was consumed in-state, while approximately 1,400 aMW were delivered out of the state (DEQ 2004).

Wholesale prices of electricity are set by contract negotiations between transmission suppliers and electricity suppliers. Wholesale prices in Montana are usually bounded by prices at the Mid-Columbia hub located near the Columbia River in Washington State. Usually, the wholesale price for electricity goes no higher than the Mid-Columbia price minus transmission costs into Montana (Blend 2007). NWE is the only major Montana transmission utility in-state on the Western Grid and is responsible for determining the default power supply for consumers in Montana. The default source must be approved by the Public Service Commission (Blend 2007).

NWE, Montana's largest private transmission and distribution utility, uses around 600 to 650 aMW of electricity to serve its customers, with a peak usage of over 1,000 MW. BPA and WAPA provide transmission service to electric cooperatives that deliver electricity to many of the smaller Montana customers on the western grid not served by NWE. Other wholesale suppliers provide electricity over transmission lines owned by NWE to a number of large commercial and industrial customers. NWE is regulated by the Montana Public Service Commission, FERC, and WECC rules, while BPA and WAPA and electric cooperatives must meet federal regulatory and WECC requirements.

Alberta's Electricity Generation and Transmission System

Alberta has experienced the fastest growing electricity demand in Canada over the past 5 years (Independent Power Producers Society of Alberta 2006). Since 1999, the demand for power in Alberta has grown by 21 percent, which compares to the average growth of demand in North America of 12 percent over the same time period (Independent Power Producers Society of Alberta 2006). To meet this demand, approximately 3,800 MW of new generation have been added to Alberta's grid in the past 7 years (Independent Power Producers Society of Alberta 2006). This includes new coal units (450 MW), new wind and alternative fuel projects (300 MW), and 3,000 MW of new gas-fired generation. At present, Alberta has 11,557 MW of supply capacity, compared with almost 9,600 MW of peak demand (Alberta Department of Energy 2006). An additional 4,800 MW of power generation has been announced by industry for future development in Alberta (Alberta Department of Energy 2006).

Coal-fired generation makes up just over 50 percent of Alberta's generating capacity and gas almost 40 percent, with hydro, wind, and alternative fuel making up the remaining 10 percent (Alberta Department of Energy 2006).

The electric transmission system in Alberta is owned, built, and maintained by private investors (Alberta Department of Energy 2006), except for some municipally owned utilities. Alberta has nearly 30 suppliers offering new electricity products and services to Alberta's wholesale, commercial, and residential customers. Alberta also has electric cooperatives. Wholesale prices are set by the laws of supply and demand in Alberta and fluctuate daily in response to consumer demand (Alberta Government Services

2006). Alberta's hourly wholesale electricity market is managed by the Alberta Electric System Operator (AESO), an independent system operator that facilitates Alberta's competitive wholesale electricity market and is accountable for the administration and regulation of load settlement function (AESO 2007). Consumers may choose their own electricity supplier or remain under default supply arrangements determined by AESO, which are periodically adjusted to reflect actual wholesale power costs (Alberta Government Services 2006). The costs and expansion plans of Alberta's transmission and distribution lines are regulated by the Alberta Energy and Utilities Board.

Alberta has been a net importer of electricity 5 out of the last 6 years, but electricity regularly flows in and out of the province (Alberta Department of Energy 2006). Alberta is not currently directly connected to Montana but has 800 MW of transmission connections with British Columbia and 150 MW with Saskatchewan (**Figure 1.1-2**).

3.16.2 System Reliability Constraints and Influences

Power transmission systems must include many sources of generation and pathways to be reliable sources of electricity. The MATL transmission line may improve reliability on Montana's transmission system due to (1) better generation resource sharing and (2) different electric routing options. Different transmission system operators (jurisdictions) have different load factors and different mixes of generation. One example of this is peak loads occurring at different times of the day or seasons of the year for different jurisdictions. The fact that every jurisdiction does not experience peak demand and supply at exactly the same time of day/month allows the potential sharing of resources, which could lead to improved reliability (Williams 2006). Tie lines such as MATL can respond to these different load and generation characteristics.

A stand alone jurisdiction would need more generators standing by on an as-needed basis to cover planned and unplanned outages of generating units, than would be required for the same level of reliability if that jurisdiction was interconnected to other jurisdictions. The probability that multiple adjacent jurisdictions would experience a large loss of generation at the same time is very low, so adjacent jurisdictions can get the benefits of higher generation reliability by sharing generation resources. Sharing these resources costs each jurisdiction less than what it would cost to own the resource entirely and not share (Williams 2006).

Potential Impacts to System Reliability

Potential impacts to system reliability from the Project and alternatives are under evaluation by the NERC and will be disclosed in a report in early 2007. If NERC determines that the proposed MATL line would adversely impact system reliability outside the tolerance levels of NWE and the WECC performance criteria, the Project would not go forward. Similarly, if the costs to mitigate system reliability concerns are

too high, the Project would not go forward. Preliminary findings regarding system reliability are provided below.

Potential Impacts to Reliability Based on Information Provided by MATL

The MATL tie line would potentially serve three jurisdictions: NWE, WAPA, and AESO. MATL would potentially enable the sharing of generation resources located in these jurisdictions, thereby providing a level of reliability that no one jurisdiction could afford if that jurisdiction had to cover the full cost of all of the same generators entirely on its own.

MATL might also allow more alternative options for power routing within Montana. If a particular line was removed from service due to either an unexpected event or scheduled maintenance, the MATL tie line could be used to supply power from the north giving transmission operators in Montana one more option to use in case of a removed line. This routing would depend upon loading on the line. Alberta's independent system operators might be able to use MATL in a similar fashion for their service area.

Several studies specific to the MATL project have been prepared to address impacts to transmission system reliability. No general conclusions can be made at this time regarding the Montana stability performance or performance on the rest of the western grid based on this single case study (ABB Consulting 2005). Results of the WECC study should answer these questions.

Potential Impacts to Reliability Based on Information Provided by NWE

A system impact study by NorthWestern Energy (NWE 2005) provides the following conclusions:

- No stability problems were found associated with just connecting the MATL 230-kV line to the Great Falls 230-kV switch yard.
- The addition of the MATL project to all appropriate generation interconnection projects with prior claims to NWE's system capacity under normal conditions did not cause any problems to the transmission system.
- Certain mitigation measures would be necessary to move power out of the Great Falls switch yard under conditions in which the largest line in a transmission path is out of commission or under higher outage conditions. The interconnection of the MATL line and the other generation interconnection projects to NWE's transmission system could result in curtailment of all, or a portion, of the energy flow at the switch yard during outages on the transmission system. NWE's transmission system would need improvements prior to delivering the full output at all times of this project in conjunction with the full output of other senior projects.

- Power delivered can do useful work only when current and voltage are perfectly in phase with each other. Flows greater than 150 MW on the line would require voltage additions at Cut Bank to compensate for line losses, such as those due to heat. There were no other overloads on the existing Montana system in the cases studied. As new generation at Judith Gap and Great Falls were added in the simulation, overloads began to occur on the Montana system for transmission outages in the Great Falls area. Any new generation, such as additional wind farms that would supply electricity to the MATL line, would make conditions worse. The overload conditions could be mitigated by reducing MATL flows when an outage occurs. New transmission additions in Montana would be required as MATL and new generation were added (ABB Consulting 2005).
- The results from simulation studies completed to date specific to the MATL project suggest that electric transmission system improvements would be required to provide a reliable connection of the MATL tie line under normal system conditions. In addition, the system could need mitigation measures for outage conditions in which other large lines would be out of commission. This mitigation would be identified in the WECC Three Phase Rating study. It is unclear who would pay for those mitigation measures. To the extent that Montana consumers do, that would be a cost to Montanans of the MATL line.

3.17 Draft Findings for Certification Approval

DEQ will approve a transmission line facility as proposed or as modified or an alternative to the proposed facility if it finds and determines:

- the need for the facility;
- the nature of probable environmental impacts;
- that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives;
- what part, if any, would be located underground;
- that the location of the proposed facility conforms to applicable state and local laws;
- that the facility will serve the public interest, convenience, and necessity;
- that DEQ has issued all necessary decisions, opinions, orders, certifications, and permits; and
- that the use of public lands for location of the facility was evaluated, and public lands were selected whenever their use is as economically practicable as the use of private lands (75-20-301[1], MCA).

The information supporting these determinations is summarized in this section.

3.17.1 Need

The Project is needed to provide transmission capacity between Lethbridge and Great Falls. Additional capacity would allow increased electricity trading between Alberta and Montana and could facilitate development of wind farms in the northern part of the study area.

3.17.2 Nature of Probable Environmental Impacts

Probable impacts to land use, geology, soils, safety, hazardous material management, electric and magnetic fields, water, wetlands, vegetation, wildlife, fish, special status species, air quality, noise, socio-economics, paleontological resources, cultural resources, transportation, utilities, visual resources, and the existing transmission system from the proposed Project and alternatives are described in Sections 3.1 through 3.15 and summarized in **Table 3.17-1**. This table summarizes impacts from Alternative 2 as proposed by the applicant. It does not include mitigation measures (such as potential alignment changes described for the land use and visuals mitigation discussions in Chapter 3 that may or may not be applied to Alternative 2 if selected as the preferred alternative. No natural resource would experience a substantial impact from implementation of any action alternative.

TABLE 3.17-1
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS AND COSTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Land Use – General Impacts	Potential impacts compared to other alternatives depend on length of alignment in general, and length on cropland.	Potential impacts compared to other alternatives depend on length of alignment in general, and length on cropland.	Potential impact compared to other alternatives depend on length of alignment in general, and length on cropland.	Loss of production due to structures & roads, increased risk of weed introduction and spread, risk of equipment damage from hitting a structure, increased time to farm around poles, and some GPS-guided equipment may be affected. Cropland crossings also increase the risk of crop duster accidents.
Land Use – General Impacts	Similar for all alternatives	Similar for all alternatives	Similar for all alternatives	During construction, facility construction traffic may conflict with movement of farm equipment on roads.
Land Use- Total Amount of Land Crossed	129.9 miles	121.6 miles	139.6 miles	Alt 3 would disturb the least amount of land. Alt 4 would disturb the most.
Land Use – Total Cropland crossed	92.7 miles	97.7 miles	87.9 miles	Alt 4 crosses the least cropland. Alt 3 crosses the most cropland.
Land Use – Total Cropland Crossed Diagonally	52.9 miles	70.4 miles	27.1 miles	Alt 4 crosses the least cropland diagonally / Alt 3 crosses the most diagonally.
Land Use – Guaranteed Use of Monopoles On Cropland	No	No	Yes	Alt 4 requires the use of monopoles for crossing all cropland, Alts 2 and 3 would use monopoles at the discretion of MATL.
Land Use –Special Management Areas Crossed	11.2 miles	6.4 miles	11.2 miles	Alt 3 would cross the least amount of special management areas. Alt 4 would avoid the Great Falls Shooting Sports Complex
Land Use – Conservation Easements Crossed	23.6 miles	18.1 miles	32.5 miles	Alt 3 would cross the least amount of conservation easements. Alt 4 would cross the most.
Land Use – Proximity to Residences	1 residential development within 100 feet of alignment	4 residential developments within 100 feet.	1 residential development within 100 feet of alignment.	Alts 2 and 4 have the fewest residential developments close to the alignment.

TABLE 3.17-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Land Use – Length of 500-foot-wide Alignment Buffer Zone Within 100 feet of a Pipeline.	7.0 miles	23.7 miles	5.7 miles	Alt 4 has the least amount of the 500-foot alignment buffer zone near pipelines. Alt 3 contains the greatest length of alignment near pipelines.
Land Use – Impacts to Roads and Road Use	Increased traffic on roads during construction resulting in occasional conflicts with farm machinery.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Geology – Miles on Soil and Geologic Resources Prone to Mass Movement	9 miles	3 miles	20 miles	Alt 3 would have the least risk of causing mass movement that could result in pole instability. Alt 4 presents the greatest risk.
Soils – Miles on Unstable Soils	10 miles	12 miles	24 miles	Alt 2 would have the least risk of soil erosion. Alt 4 presents the greatest risk. Soil erosion impacts can be mitigated under all alternatives.
Engineering	No adverse impact to structural reliability is anticipated.	Same as Alt 2	Same as Alt 2	All facilities are proposed to be constructed in compliance with accepted engineering standards.
Hazardous Materials	No impact to resources from hazardous materials is anticipated.	Same as Alt 2	Same as Alt 2	MATL proposes to manage and transport hazardous materials and wastes in accordance with State and federal requirements.
EMF – Exposure Levels	No impact	Same as Alt 2	Same as Alt 2	Exposure levels would not exceed state standards for electric fields.
EMF – Radio or TV Interference	No impact	Same as Alt 2	Same as Alt 2	No alternative is expected to interfere with radio or TV reception.

TABLE 3.17-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Water – General Impacts	Potential impact compared to other alternatives depends on number of river crossings	Potential impact compared to other alternatives depends on number of river crossings	Potential impact compared to other alternatives depends on number of river crossings	Minor short-term adverse impacts to surface water quality could occur by temporarily increasing sources of sediment from the time of construction to reclamation completion. This impact would be mitigated if water and riparian areas are undisturbed or measures to reduce sediment transport are installed.
Water – Potential Number of Perennial Stream or River Crossings	10	6	17	Alt 3 poses the lowest risk and Alt 4 poses the highest risk of contributing sediment to streams based on number of stream crossings.
Water – Potential Number of Lake Crossings	4	6	2	
Wetlands - General	Potential impact compared to other alternatives depends on acres of crossed wetlands	Potential impact compared to other alternatives depends on acres of crossed wetlands	Potential impact compared to other alternatives depends on acres of crossed wetlands	Construction disturbance could result in a change in wetland plant community if wetland hydrology is altered. This impact would not occur if wetlands were undisturbed during construction and maintenance.
Wetlands – Total Wetlands and Potential Wetlands Crossed	67.6 acres	62.3 acres	76.4 acres	Alt 3 crosses the least amount of ground that contains wetlands and potential wetlands. Alt 4 crosses the greatest amount of wetlands and potential wetlands.
Vegetation - General	Potential impact compared to other alternatives is dependent on acres of disturbed native vegetation	Potential impact compared to other alternatives is dependent on acres of disturbed native vegetation	Potential impact compared to other alternatives is dependent on acres of disturbed native vegetation	Temporary loss of vegetation and increased risk of weed emergence and dispersion in disturbed areas until reclaimed.
Vegetation – Potential loss during construction	38 acres	41 acres	48 acres	Alt 2 would disturb the least amount of native vegetation; Alt 4 would disturb the largest acreage.

TABLE 3.17-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Wildlife - General	Impacts greatest for birds and animals with low mobility.	Same as Alt 2	Same as Alt 2	Short-term impacts include loss of individuals during construction or direct disturbance of species during critical periods in their life-cycles. Long-term impacts include habitat alterations, electrocutions, and collisions. Impacts would be similar for all alternatives.
Wildlife- Crosses Mule Deer Habitat	19 miles	10 miles	28 miles	Minor to no impact to mule deer population relative to the size of the existing habitat and individual mobility.
Wildlife – Birds	Collisions with transmission line could result in bird loss. Portion of the line located near wetland and the Benton Lake National Wildlife Refuge would experience bird collisions.	Because the line length and location are similar to the existing 115-kV line in Alt 1 (within 1% difference) and both pass near wetlands and the Benton Lake National Wildlife Refuge, impacts to wildlife would be similar to Alt 2.	Same as Alt 3	Bird collision potential is similar for all alternatives.
Fish – Expected Impacts to Water Quality	10 perennial river crossings	6 perennial river crossings	17 perennial river crossings	Alt 3 poses the lowest risk of affecting fish habitat by contributing sediment to streams based on the number of stream crossings.
Special Status Species - Vegetation	All known occurrences are located outside the study area	Same as Alt 2	Same as Alt 2	Risk to vegetation special status species is based on risk to its habitat (wetlands). Alt 3 has the least likelihood of affecting vegetation species of concern because the alignment crosses less riparian habitat than Alts 2 and 4.
Special Status Species – Wildlife Habitat	19.9 miles	11.3 miles	11.7 miles	Alts 3 and 4 would cross the least amount of habitat type used by special status species wildlife.

TABLE 3.17-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Air Quality - General	Some localized short-term emissions of particulate matter would occur during construction.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Audible Noise - General	Short-term, localized construction noise. Noise from rain or wind on the transmission line would be below BPA and HUD guidelines.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Social Resources	Increased short-term construction and long-term maintenance employment opportunities	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics – Short Term	Short-term construction-related employment would be available.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics - Counties	Long-term operation and maintenance employment would be available. County and State tax revenues would increase.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact
Economics - State	Opportunities to export electric power would increase. Increased competition may reduce cost to ratepayers. Creation of opportunities to start up wind generation facilities.	Same as Alt 2	Same as Alt 2	All alternatives have similar impact

TABLE 3.17-1 (Continued)
SUMMARY COMPARISON OF ENVIRONMENTAL IMPACTS BY ACTION ALTERNATIVE

Resource Area/ Resource Attribute	Alternative 2	Alternative 3	Alternative 4	Summary of Impacts
Paleontological Resources – Miles of Geologic Units Crossed With a High Probability of Containing Fossils.	51.6 miles	44.3 miles	44.6 miles	Alt 3 would cross the fewest miles having a surface expression of the Two Medicine Formation which has a high probability of containing fossils. Alternative 2 would cross the most miles over the Two Medicine Formation.
Cultural Resources- Number of Cultural Resources Crossed	Crosses 6 sites eligible for the NRHP and 13 sites of undetermined eligibility.	Crosses 7 sites eligible for the NRHP and 9 sites of undetermined eligibility.	Crosses 3 sites eligible for the NRHP and 20 sites of undetermined eligibility.	Alt 4 would pose a risk to the lowest number of cultural resource sites. Alt 3 would pose a risk to the greatest number of cultural resource sites.
Visuals - General	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast.	Potential impact compared to other alternatives is dependent on proximity to viewers and physical contrast	Decline in aesthetic quality of a view shed, visual contrast or landscape change due to contrast with natural landscape.
Visuals – Residences within ¼ mile	17 residences	23 residences	22 residences	Alt 2 would be visible from the fewest residences within ¼ mile. Alts 3 and 4 would have similar proximity to residences.
Visuals – Number of Residences ¼ - ½ Mile	60 residences	71 residences	45 residences	Alt 4 would be visible from the fewest residences within ¼ to ½ mile. Alt 3 would be visible to the most residences.
Visuals – Within ½ mile from a Travel Corridor	6.1 miles	7.6 miles	5.0 miles	Alt 4 would be visible from the shortest length of a travel corridor within ½ mile. Alt 3 would have the longest visibility.

Notes:

Alt	Alternative	BPA	Bonneville Power Administration		
EMF	Electric and Magnetic Field	EPA	U.S. Environmental Protection Agency		
Est	estimated	GPS	Global Positioning System	NRHP	National Register of Historic Places
HUD	U.S. Housing and Urban Development	L & C	Lewis and Clark County	TV	Television

3.17.3 Department Findings Necessary for Transmission Line Certification

Under MFSA, DEQ requires a certificate of compliance for development of electric transmission lines. DEQ must find that the selected alternative meets the set of criteria listed under 75-20-301, MCA to be eligible for transmission line certification. Findings for all criteria under each alternative are summarized in **Table 3.17-2**.

TABLE 3.17-2
COMPARISON OF FINDINGS NECESSARY FOR CERTIFICATION BY ALTERNATIVE

Finding Number	Finding Criteria	Alternative 1 (no action)	Alternative 2	Alternative 3	Alternative 4
(1)	Within 30 days after issuance of the report pursuant to 75-20-216 for facilities defined in 75-20-104(8)(a) and (8)(b), the department shall approve a facility as proposed or as modified or an alternative to a proposed facility if the department finds and determines:				
(1) (a)	the basis of the need for the facility	Not applicable, the transmission line would not be built.	Additional transfer capacity and transmission access for new wind power generator.	Same as Alternative 2.	Same as Alternative 2.
(1) (b)	the nature of the probable environmental impact	**Table 3.17-1** summarizes probable impacts. Impacts are presented in more detail under specific resource areas in Chapter 3.	**Table 3.17-1** summarizes probable impacts. Impacts are presented in more detail under specific resource areas in Chapter 3.	**Table 3.17.1** summarizes probable impacts. Impacts are presented in more detail under specific resource areas in Chapter 3.	**Table 3.17.1** summarizes probable impacts. Impacts are presented in more detail under specific resource areas in Chapter 3.
(1) (c)	that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives	Not applicable, the transmission line would not be built.	Most potential adverse environmental impacts are minimized through the application of environmental specifications (**Appendix F**).	**Table 3.17.1** summarizes probable impacts. Impacts are presented in more detail under specific resource areas in Chapter 3.	**Table 3.17.1** summarizes probable impacts. Impacts are presented in more detail under specific resource areas in Chapter 3.
(1) (d) (i)	what part, if any, of the line or aqueduct will be located underground	Not applicable	No part of the transmission line would be underground	Same as Alternative 2.	Same as Alternative 2.
(1) (d) (ii)	that the facility is consistent with regional plans for expansion of the appropriate grid of the utility systems serving the state and interconnected utility systems	Not applicable	The transmission line would allow new generators to connect to regional grids and provide a direct connection between Alberta and Montana grid systems.	Same as Alternative 2.	Same as Alternative 2.

TABLE 3.17-2 (Continued)
COMPARISON OF FINDINGS NECESSARY FOR CERTIFICATION UNDER 75-20-301, MCA BY ALTERNATIVE

Finding Number	Finding Criteria	Alternative 1 (no action)	Alternative 2	Alternative 3	Alternative 4
(1) (d) (iii)	that the facility will serve the interests of utility system economy and reliability	Not applicable	The transmission line would not affect the system economy. Impact to system reliability is unknown. If the system is determined to adversely impact reliability beyond NERC and NWE reliability criteria tolerance levels, the project will not go forward.	Same as Alternative 2.	Same as Alternative 2.
(1) (e)	that the location of the facility as proposed conforms to applicable state and local laws and regulations, except that the department may refuse to apply any local law or regulation if it finds that, as applied to the proposed facility, the law or regulation is unreasonably restrictive in view of the existing technology, of factors of cost or economics, or of the needs of consumers, whether located inside or outside the directly affected government subdivisions	Not applicable	The location of the facility would conform to applicable state and local laws and regulations either as a permitting or licensed condition, or in compliance with project-specific environmental specifications (**Appendix F).**	Same as Alternative 2.	Same as Alternative 2.
(1) (f)	that the facility will serve the public interest, convenience, and necessity	Not applicable	The facility would serve public interest, convenience and necessity as described in **Table 3.17-3**.	Same as Alternative 2.	Same as Alternative 2.

TABLE 3.17-2 (Continued)
COMPARISON OF FINDINGS NECESSARY FOR CERTIFICATION UNDER 75-20-301, MCA BY ALTERNATIVE

Finding Number	Finding Criteria	Alternative 1 (no action)	Alternative 2	Alternative 3	Alternative 4
(1) (g)	that the department or board has issued any necessary air or water quality decision, opinion, order, certification, or permit as required by 75-20-216(3)	No permits would be necessary.	The department would issue all necessary environmental permits and applicable project-specific environmental specifications. MATL has not applied for air or water quality permits.	Same as Alternative 2.	Same as Alternative 2.
(1) (h)	that the use of public lands for location of the facility was evaluated and public lands were selected whenever their use is as economically practicable as the use of private lands	Not applicable	10.1 miles of the line would be located on Montana State and federal land. 120.2 miles would be located on private land.	5.4 miles of the line would be located on Montana State and federal land. 116.2 miles would be located on private land.	11.6 miles of the line would be located on Montana State and federal land. 128.1 miles would be located on private land.
(2)	In determining that the facility will serve the public interest, convenience, and necessity under subsection (1)(f), the department shall Consider the statutory requirements items below and rule-making requirements in **Table 3.17-2**:				
(2) (a)	the items listed in subsections (1)(a) and (1)(b);	See (1)(a) and (1)(b) above	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
(2) (b)	the benefits to the applicant and the state resulting from the proposed facility	The applicant would not make anticipated profit. The state would not receive tax revenue from workers and future related development.	Benefits to the applicant would be the monetary profit from operating the transmission line. Benefits to the state may be more efficient operation of the grid, local tax revenues to counties in which the line is located, state tax revenues from the line, a short-term boost to local economies from construction, future electricity generation, and possible opening of spot electricity market within which Montana utilities can buy electricity.	Similar to Alternative 2.	Similar to Alternative 2 with the exception that the applicant profit would not be adequate to go forward on the project.

TABLE 3.17-2 (Continued)
COMPARISON OF FINDINGS NECESSARY FOR CERTIFICATION UNDER 75-20-301, MCA BY ALTERNATIVE

Finding Number	Finding Criteria	Alternative 1 (no action)	Alternative 2	Alternative 3	Alternative 4
(2) (c)	the effects of the economic activity resulting from the proposed facility	Farmers would not experience increased costs from loss of farming acreage or experience difficulty farming due to the poles.	Impacts would be minimal at a state level. Construction benefits would be short term. Line maintenance employment benefits and tax benefits would be long term but likely small at both a county and state level except for Pondera County which could earn up to $1 million per year in tax revenue. Farmers would experience greater costs from loss of farming acreage and difficulty farming due to the poles. Some of these costs would be mitigated by payments from MATL.	Similar to Alternative 2	Similar to Alternative 2 with the exception that cost to farmers from loss of farming acreage and difficulty farming due to the poles would be less due to decreased diagonal crossings on farm fields and increased used of single poles.
(2) (d)	the effects of the proposed facility on the public health, welfare, and safety	Not applicable	The facility would not likely have adverse affects on public health, welfare and safety.	Similar to Alternative 2	Similar to Alternative 2

Notes:
Alt Alternative
MATL Montana Alberta Tie Line

4.0 Cumulative and Unavoidable Impacts and Irretrievable Commitments, Regulatory Restrictions Analysis, and Comparison of Alternatives

This chapter describes expected

- Cumulative impacts of the proposed Project and alternatives when combined with past, present, and related future actions
- Unavoidable adverse impacts
- Irreversible and irretrievable commitments of resources
- Short-term use versus long-term productivity
- Regulatory impacts on the applicant's private property rights.

4.1 Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). The regulations further explain that "cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

MEPA defines cumulative impacts as "the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type" (75-1-220(3)). Related future actions may only be considered when these actions are under concurrent consideration by any agency through preimpact statement studies, separate impact statement evaluations, or permit processing procedures (75-1-208(11)).

Analysis of cumulative environmental impacts of a proposed Project and other actions helps to ensure that agency decisions consider the full range of consequences of the agencies' actions to the extent information is available.

Cumulative Impacts Region of Influence

The geographical extent of the analysis area was selected for each resource based on the extent and duration of anticipated effects caused by an action. The cumulative impacts region of influence includes all areas in which planned or expected actions might occur.

Cumulative impacts are identified only where there is a reasonable likelihood that the proposed Project would have a cumulative or incremental effect with other past, present, and reasonably foreseeable. Resources that are likely to experience cumulative impacts in addition to direct and indirect impacts from the action alternatives are: land use, water, wetlands, vegetation, wildlife, air quality, noise, socioeconomic resources, cultural resources, and visual resources. The effects of future actions can be hard to predict, so the cumulative impacts analysis is qualitative rather than quantitative.

Past and Present Actions Potentially Contributing to Cumulative Impacts

The Project study area and vicinity are transected by at least 17 pipelines and 8 transmission lines. Sources of information for linear facilities that transect the study area are: 2005 air photos, field observations, and U.S. Geological Survey topographic maps at a scale of 1:24,000. Existing pipelines in the study area are described in Section 3.3. Existing transmission lines that transect the study area are:

- NWE 100-kV transmission line that runs southwest from Great Falls
- NWE 100-kV transmission line that runs south from Great Falls
- NWE 115-kV transmission line that roughly parallels the route proposed under Alternative 3.
- NWE 161-kV transmission line that runs northeast from Great Falls
- WAPA 115-kV transmission line that runs east-west through Shelby and Cut Bank
- WAPA 161-kV transmission line that runs from Great Falls to Havre
- WAPA 230-kV transmission line that runs between Shelby and Great Falls
- PPL 100-kV transmission lines that connect hydroelectric developments to the Great Falls 230-kV switch yard

Other present and past actions in the vicinity of the proposed Project include ongoing uses such as farming (irrigated and non-irrigated), grazing, weed management, hunting, cities and towns, residential areas, industrial and commercial areas, federal and state highways and county roads, railroads and railroad rights of way, communication facilities, military installations, conservation easements, airports, general recreation, and national trails.

Related Future Actions Potentially Contributing to Cumulative Impacts

Related future actions that could occur in the Project study area include the development of wind farms, a hybrid energy project (wind and biodiesel), a new coal-fired power plant, development of irrigation systems, and the construction of new pipelines delivering petroleum products from Canada to markets within the U.S. Related future actions in the region of the Project area are described in detail in Section 2.6 and summarized below.

- The potential to upgrade the capacity of the MATL proposed transmission line to 400 MW in each direction
- Potential development of a trading system for firm and non-firm capacity for the MATL line. The result would be that generators that ship on the MATL line would have the ability to sell unused capacity to a secondary market during periods when they can not use their full capacity.
- Various planned wind energy projects that would likely be implemented if the MATL line was constructed (**Table 2.6-1**).
- Coal-fired Highwood Generation Station – Southern Montana Electric

Impacts from potential wind farms have been addressed in a general sense in the *Final Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM 2005). Several potential wind farms that would ship power on the proposed MATL transmission line are in early development stages. Activities that could impact resources from increased wind energy generation are identified in the Wind Energy Programmatic EIS and repeated in the section. Impacts from the proposed Highwood Generation Station are described in the final EIS for that project (USDA Rural Utilities Service and DEQ 2007). Impacts of pipeline construction would be similar to those described in the final EIS for Express Pipeline (BLM and DEQ 1996).

Land Use and Infrastructure

Existing transmission lines, oil and gas well access, pipelines, and roads have affected and would continue to affect land uses within the analysis area. Additional wind farms with associated roads and power lines are anticipated due to MATL and other transmission lines. Depending on their location, these activities may affect farming operations, remove farmland from production, increase traffic on roads and highways, and pose additional hazards to aircraft. Construction related disruption of existing land uses would be short term and result from construction of wind farms and associated access roads and power lines; pipelines and associated pump stations and power lines; and the proposed Highwood Generating Station and associated railroad spur and interconnecting transmission lines. Follow-up power line and pipeline maintenance using standard equipment would be an infrequent occurrence and not add greatly to the existing traffic loads on the roadway network. Each additional elevated structure or set of structures with wires within a given airspace would be a cumulative element for pilots to avoid and would result in a cumulative impact.

Geology and Soils

Cumulative impacts on geology and soils may result from the construction and operation of future wind farms and pipelines within the project study area, construction of new roads, and the increase and need for new or expanded sand, gravel, and

concrete operations in the area. Most wind energy projects include best management practices to mitigate impacts from blasting, excavation, earthmoving, and other construction activities (BLM 2005), and these adverse cumulative impacts are likely to be minor, indirect, and short term. Any cumulative impacts that might occur would be minimal and largely limited to the areas actually disturbed.

EMF

If the line capacity is increased to 400 MW in each direction, the electric field at the edge of the right of way would increase and the mean magnetic field would also be higher based on the increased wattage.

Water Resources

Past and present actions potentially affecting water resources in the vicinity of the analysis area are: ongoing weed management, fertilization, crop production, grazing, road use and maintenance, and waterway modifications for stock watering. These activities can result in surface water flow alterations, water diversions, and stream bank modification and destabilization. Weed control and fertilization can introduce pesticides and nitrates and total dissolved solids to water supplies. Irrigation and waterway modifications for stock can result in increased salinity and flow reduction due to stream channel obstructions and diversions, and saline seep. Some grazing practices result in sedimentation to surface water due to soil destabilization from reduced vegetation. Road maintenance and use at river and stream crossings can destabilize banks and increase sedimentation to surface water.

DEQ has determined that seven water bodies in the analysis area have impaired or threatened beneficial uses by one or more of the activities described above: Missouri River, Benton Lake, Lake Creek, Teton River, Pondera Coulee, Cut Bank Creek, and Old Maids Coulee. These water bodies and their impairment causes and sources are described in Section 3.5 under water resources and in **Appendix I**. Of these water bodies, the Teton River and Pondera Coulee would be crossed by all action alternatives. The Teton River is classified as Category 4A: "all TMDLs (total maximum daily loads) needed to rectify all identified threats or impairments have been completed and approved but impaired beneficial uses have not yet achieved fully supporting status." Pondera Coulee is classified as Category 5: "one or more applicable beneficial uses have been assessed as being impaired or threatened and a TMDL is required." The effects of present and past actions in the analysis area, when added to potential adverse impacts from the action alternatives, would cumulatively present an increased risk of impairment of one or more beneficial uses. This would be a minor long-term adverse cumulative impact to water resources.

Related future actions include the construction and operation of future wind farms and pipelines in response to the availability of increased transmission capability within the project study area. Activities that could impact water resources from increased wind energy generation are identified in the Wind Energy Programmatic EIS as occurring primarily during construction and include:

- Potential reduction in existing water supply sources due to withdrawals during construction
- Increased soil erosion due to ground disturbing activities such as heavy equipment traffic and extraction of geologic materials from borrow areas or quarries.
- Wastewater discharges
- Pesticide application
- Diversion of surface water flows by access road systems, storm water control systems, or excavation activities
- Construction activity alteration of interaction between surface water bodies and local groundwater in systems where the two resources are hydrologically connected.

These activities when combined with the proposed Project or alternatives would cumulatively increase the risk of introducing sediment and other pollutants to water resources in the analysis area and potentially affect the quantity and quality of available water supplies. Construction of these projects would likely cause increased stormwater runoff and potential soil erosion that may carry sediments to surface waters. Because the action alternatives for the MATL Project and projects that might be permitted through the Wind Energy Programmatic EIS would include implementation of mitigation measures to reduce risk of sedimentation, employ proper pesticide application procedures, and comply with waste water discharge requirements, these adverse cumulative impacts are likely to be minor and short term.

Wetlands

Cumulative impacts on wetlands may result from the construction and operation of future wind farms, pipelines, and the Highwood Generation Station within the Project study area. In particular, the area around Cut Bank has good wind power generation potential and also a high concentration of semi-permanent and seasonal wetlands (often referred to as prairie potholes) that provide important habitat for many birds and small mammals. The Benton Lake NWR, located in the southern portion of the Project area, contains the combination of wetlands and grasslands that is important to the management of many waterfowl and wildlife species.

Impacts to wetlands from potential wind farms have been addressed in a general sense in the BLM Wind Energy Programmatic EIS (BLM 2005). Activities that could impact wetlands would occur primarily during construction. The potential impacts would be:

- Habitat disturbance
- Direct injury or mortality
- Erosion and runoff
- Exposure to contaminants
- Facility construction activities

Because the action alternatives for the MATL Project, future wind farms, and the Highwood Generation Station would typically include mitigation measures to reduce disturbance to wetlands, these adverse cumulative impacts are likely to be minor, indirect, and short term.

Native Vegetation

Most of the native vegetation communities in the alignments have been converted to farmland. In some areas, native vegetation is still present and subject to grazing pressure, which may change community structure and composition, in addition to providing disturbed areas for weedy species establishment. Past development of pipelines, oil wells, and access roads to these structures has further reduced native vegetation communities. It is highly likely that more native communities would be disturbed or reduced as wind farms, irrigation systems, or petroleum pipelines are developed in the region. Depending on reclamation practices, impacts to native vegetation can be reduced.

Wildlife

Past activities that have impacted wildlife resources within the analysis area include: loss of native grassland habitat due to agricultural development, loss of wetland habitat due to drainage for agriculture, and minor loss in habitat and disturbance related to oil and gas development and construction of associated pipelines. These activities have resulted in some displacement of wildlife due to habitat loss; however, many of the wildlife species have been able to adapt to habitat conversions and have not been negatively impacted. Species that have experienced the greatest impacts are those species dependent on native grassland habitats, such as grassland dependent birds that have experienced a loss of nesting habitat. Present activities within the analysis area are very similar to activities of the past. Agriculture is the predominant use of land; however, grassland and wetland conversion to agricultural lands no longer occurs at a high rate. Land use within the region is relatively stable and land use practices do not generally negatively impact wildlife.

Related future actions, described in Section 2.7, would result in disturbance and displacement of wildlife during the construction phase, followed by some permanent loss of habitat. Wind farms could have an impact on avian species due to displacement

from habitats and collisions though these impacts may be reduced with sound siting practices.

The MATL transmission line would contribute to habitat loss and potentially increase avian mortality due to collisions. The cumulative impacts of the habitat loss would not likely reduce the viability of wildlife populations within the region, as structures would reduce habitat by a relatively small amount and would not likely consume critical habitats such as large expanses of grasslands or riparian areas.

The Highwood Generation Station would impact wildlife and other biological resources by temporarily displacing wildlife due to removal of vegetation and disturbance from construction equipment. The Highwood Generation Station and wind turbines would result on long-term increase in mortality of terrestrial mammals by rail strikes and increased traffic on access roads. There is some potential for increased mortality to birds and bats from blade strikes.

Threatened, Endangered, and Special Status Species

Cumulative impacts to vegetation and wildlife special status species would not differ from those effects discussed within the Wildlife and Native Vegetation sections above.

Air Quality

Past and present actions potentially affecting air resources in the vicinity of the analysis area are: petroleum refining plant (MRC refinery), crude oil and natural gas compressor stations, petroleum product terminals, coal-fired electrical generating plants, concrete mix plants, asphalt mix plants, crematoriums, gravel crushers and associated processing equipment, fugitive dust and smoke sources from farming, field and forest burning, and dust from gravel roads. These sources may affect air quality within the general area of the activity and, possibly, the air shed, depending on the duration and nature of the emission. For emission sources such as construction activities, burning, and road dust the effects are anticipated to be temporary in duration. For emission sources such as refineries, power generating plants, and crematoriums, the impacts would be regulated through permits by DEQ. In general, these activities, when occurring at the same time as, and in the vicinity of, MATL construction activities, are anticipated to have minor adverse cumulative impacts.

The potential impacts of future wind farm developments have been generally addressed in the BLM Wind Energy Programmatic EIS (BLM 2005). Impacts to air resources are anticipated to be temporary. Fugitive gaseous and particulate emissions from construction and operation and maintenance would stop or decrease once these activities are completed. These activities, when combined with the proposed Project or alternatives, would cumulatively increase the risk of affecting air quality in the study

area. Given that mitigation measures such as dust suppression for fugitive emissions, would be implemented, and stationary sources would need to comply with emission standards set by DEQ, these cumulative impacts are anticipated to be minor and short term.

Noise

Noise would be cumulatively affected by the proposed action and the development of wind generation activities. Noise contributed by wind generators could affect nearby residences if the turbines are operated at a wind speed less than about 23 miles per hour (BLM 2005). Cumulative impact from wind turbine noise and the transmission line under Alternative 2 depend on proximity to residences.

Noise contributed by planned wind development would be generated by construction and maintenance activities and generator operations. Construction activities would be similar to those proposed under MATL with the addition of potential blasting. During operation, major noise sources would be aerodynamic noise, transformer and switchgear noise from substations, corona noise from transmission lines, vehicular traffic noise, including commuter and visitor and material delivery, and noise from an operation and maintenance facility, if present. Overall, noise levels of continuous site operation would be lower than the noise levels associated with short-term construction activities (BLM 2005).

At a wind speed of about 48 miles per hour, wind-generated noise is higher than aerodynamic noise. Noise from wind turbines would be more noticeable at lower wind speeds (BLM 2005).

Socioeconomic

The proposed Project and action alternatives would be constructed in an area with major wind generation potential. Implementation of the proposed Project would provide the transmission capacity needed by wind generation projects to access the energy market. At the time of this analysis, up to four wind energy generation projects are likely to occur in the foreseeable future. For instance, Great Plains Wind and Energy, Inc. indicated plans to construct a 45 to 60-turbine wind farm that would straddle the border between Toole and Glacier counties. The Great Plains project could reportedly add $15 million to the two counties' tax base over the next 20 years. During the construction phase, the Great Plains project is estimated to require 250 workers, most of whom would be hired locally. When completed, the project would continue to provide 5 to 15 full-time jobs (Simonetti 2006). Details of other potential projects were not available, but would likely result in similar economic benefits to the region. Case studies of three other wind generation projects occurring elsewhere in the nation indicate economic benefits may vary widely from project to project. For instance, the

construction phase of a wind generation project may generate up to 100 jobs while the operation and maintenance phase may provide between 6 and 31 permanent jobs and between $103,000 and nearly $1 million dollars in additional annual personal income. Wind projects also provide additional landowner revenue in the form of lease payments. Assuming that these types of projects cause little or no increase in government or school budgets, tax payments made by project owners may have the additional benefit of reducing the local tax burden for other local tax payers (Northwest Economic Associates 2003).

Visuals

All action alternatives when combined with past and present (existing transmission lines) actions and actions reasonably expected to occur (wind energy development projects and the Highwood Generating Plant), would increase the adverse impact to the aesthetic quality of the landscape for the long term. Wind generation facilities would be expected to be highly visible because of the introduction of turbines into typically rural or natural landscapes, which have few other comparable structures. In regions with variable terrain, wind developments along ridgelines would be most visible.

A summary of cumulative impacts for the action alternatives is presented in **Table 4.1-1**. **Table 4.1-1** describes impacts for Alternative 2 as proposed by the applicant with the addition of environmental specifications (**Appendix F**).

4.2 Unavoidable Adverse Impacts

This section summarizes the adverse effects that cannot be mitigated that are expected to occur with implementation of the action alternatives.

Unavoidable short-term adverse impacts would be expected to occur to wetlands, land use, visuals, and native vegetation. Long-term unavoidable adverse impacts would occur to land use, birds, and visuals. Construction and operation activities could have adverse impacts on wetland resources from the alteration of surface water drainage patterns, disturbances and trampling of vegetation during construction, and from an increase in sedimentation to localized wetland areas from disturbances on adjacent properties. Transmission line structures would not be placed in wetland areas, so no long-term impacts are expected for wetland resources. Native vegetation would be unavoidably disturbed and weed infestations may occur for the short term during construction and before reclamation. Use of travel routes could be unavoidably obstructed during construction. Long-term impacts to land use include loss of production of farmland, increased risk to aircraft, and interference with farming activities. An increase in avian mortality would be unavoidable and long term. Visual resources would experience unavoidable major adverse impacts to the aesthetic quality of the landscape by transmission lines.

TABLE 4.1-1
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Forseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Land Use & Infrastructure	Loss of production due to structures & roads, increased risk of weed introduction and spread, risk of equipment damage from hitting a structure, increased time to farm around poles, and some GPS-guided equipment may be affected. Cropland crossings also increase the risk of crop duster accidents. During construction, facility construction traffic may conflict with movement of farm equipment on roads. Alt 3 would disturb the least amount of land. Alt 4 would disturb the most. Alt 4 crosses the least total cropland and diagonally. Alt 3 crosses the most cropland. Alt 4 would result in the fewest acres of cropland removed from production due to poles. Alt 4 requires the use of monopoles for crossing all cropland.	Existing constructed network of pipelines and transmission lines. Ongoing farming, grazing, weed management, hunting, cities and towns, residential areas, industrial and commercial areas. Use and maintenance of federal and state highways and county roads, railroads and railroad rights of way, communication facilities, military installations, conservation easements, airports, general recreation, and national trails.	The Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed.	Depending on the location of additional wind farms, combined with oil and gas well access roads and other transmission lines, these activities may affect farming, remove farmland from production, increase traffic on roads and highways, and pose additional hazards to aircraft. The impacts during construction would be primarily short term and of minor magnitude. Other long-term cumulative impacts would be from impacts of farming around structures located in cropped fields. Follow-up power line maintenance using standard equipment would be an infrequent occurrence and not add greatly to the existing traffic loads on the roadway network. Each additional elevated structure or set of structures with wires within a given airspace would be a cumulative element for pilots to avoid and would result in a cumulative impact.

TABLE 4.1-1 (Continued)
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Foreseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Geology & Soils	Risk of mass movement, soil compaction, mixing of soil horizons, and soil erosion. Alternative 4 poses the highest risk of mass movement and soil erosion. Alternative 3 has the least risk of mass movement. Alternative 2 has the least risk of soil erosion. Soil compaction and mixing are expected to be proportional to the length of the alternative.	Grazing, road maintenance.	The Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed. Related new or expanded sand, gravel, and concrete operations in the area.	Same as direct and indirect impacts.
Engineering & Hazardous Mat.	None	Maintenance of federal and state highways and county roads, railroads. Use of farm machinery around poles. Potential contamination from refueling and servicing farming and construction equipment.	Ash and waste water treatment byproducts from the Highwood Generation Station.	Similar to direct and indirect impacts
EMF	None	Existing constructed network of transmission lines.	Potential upgrade of the MATL line to 400 MW in each direction.	None

TABLE 4.1-1 (Continued)
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Foreseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Water	Risk of sediment discharge to surface water during construction at river and stream crossings. Alt 3 poses the lowest risk, and Alt 4 poses the highest risk of contributing sediment to streams.	7 water bodies in the analysis area have impaired or threatened beneficial uses by one or more of the following: weed management, crop fertilization and production, grazing, road use and maintenance, waterway modifications for stock watering.	Operation of the Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed.	Increased risk of introducing sediment and other pollutants to water resources in the analysis area and potentially affect the quantity of available water supplies.
Wetlands	Risk of change in wetland hydrology due to construction disturbance. Impacts would be mitigated or eliminated with implementation of mitigation measures. Alt 3 crosses the least amount of ground and Alt 4 the most that contains wetlands or potential wetlands.	Farming, grazing, weed management. Road use and maintenance, waterway modifications for stock watering.	Operation of the Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed.	Same as direct and indirect impacts.
Vegetation	Temporary loss of vegetation and increased risk of weed emergence and dispersion in disturbed areas until reclaimed. Alt 3 would disturb the least amount and Alt 4 the most of native vegetation.	Grazing, crop cultivation, weed management, Construction of roads, cities and other facilities.	Operation of the Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed.	Same as direct and indirect impacts.

TABLE 4.1-1 (Continued)
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Foreseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Wildlife	Short-term loss of individuals during construction or direct disturbance of species during critical periods in their life-cycles. Long-term habitat alterations, electrocutions, and collisions would result in avian mortality. Impacts would be similar for all alternatives.	Habitat conversion to agriculture; loss of native grassland habitat due to agricultural development; loss of wetland habitat due to drainage for agriculture; and, minor loss in habitat and disturbance related to petroleum pipeline and irrigation development.	Operation of the Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed.	Constructed developments may reduce habitat by a relatively small amount and would not likely consume critical habitats such as large expanses of grasslands or riparian habitats. Operation of wind farms would contribute to long term avian mortality and potentially adversely affect bird migration patterns.
Fish	Risk of habitat degradation through sediment discharge to streams and rivers at alignment crossings during construction. Alt 3 presents the lowest risk to fish habitat, Alt 4 presents the greatest risk.	Weed management, crop fertilization and production, grazing, road use and maintenance, waterway modifications for stock watering.	The operation of the Highwood Generation Station.	Same as direct and indirect effects
Special Status Species	Risk to special status plant species is based on risk to habitat (wetlands). Alt 3 would have the least affect on species of concern. Alts 2 and 4 would have similar risk.	Existing transmission lines. Farming, hunting, cities and towns, residential areas, industrial and commercial areas. Construction of federal and state highways and county roads, railroads, military installations, and airports.	Operation of the Highwood Generation Station and various planned wind energy projects would likely be implemented if the MATL line was constructed.	Same as for Wildlife and Vegetation

TABLE 4.1-1 (Continued)
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Foreseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Air Quality	Alts 3 and 4 would cross the least amount of habitat type used by special status species wildlife.	Refinery, crude oil and natural gas compressor stations, petroleum product terminals, coal-fired electrical generating plants, concrete mix plants, asphalt mix plants, crematoriums, gravel crushers and associated processing equipment, asphalt plants, fugitive dust and smoke sources from farming, field and forest burning, and dust from gravel roads.	Various planned wind energy projects that would likely be implemented if the MATL line was constructed. The operation of the coal-fired Highwood Generation Station by Southern Montana Electric would result in a long-term minor to moderate degradation of local air quality.	Minor short term releases of fugitive gaseous and particulate emissions during the construction phases and operation and maintenance efforts of additional facilities would cumulatively increase risk of affecting air quality in the study area.
Audible Noise	Short-term, localized construction noise. Noise from rain or wind on the transmission line would be below BPA and HUD guidelines	Cities and towns, industrial and commercial areas. Use and maintenance of federal and state highways and county roads, railroads and railroad rights of way, military installations, airports,	Various planned wind energy projects that would likely be implemented if the MATL line was constructed. Noise levels from the operation of the Highwood Generation Station would be audible for several miles from the site.	Noise contributed by wind generation power could affect nearby residences if operated at a wind speed less than 23 miles per hour. Cumulative impact from noise and Alternative 2 is dependent on proximity to residences.

TABLE 4.1-1 (Continued)
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Foreseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Socioeconomics	Increased short-term construction and long-term employment opportunities County and State tax revenues would increase. Opportunities to export electric power & start up new generation sources would increase. Increased competition may reduce cost to ratepayers.	Existing constructed network of pipelines and transmission lines. Ongoing farming, grazing, weed management, hunting, cities and towns, residential areas, industrial and commercial areas.	Potential development of a trading system for firm and non-firm capacity for the MATL line. Various planned wind energy projects that would likely be implemented if the MATL line was constructed. Construction and operation of the coal-fired Highwood Generation Station would have a moderate beneficial effect.	Each new wind generation and a coal-fired generation station would increase jobs by 4 - 26 people during construction and add $98,000 - $400,000 in additional personal income to a region. Operation and maintenance phase may provide 6 - 31 permanent jobs and $103,000 - $1,000,000 in additional annual personal income. Wind projects also provide additional landowner revenue. Tax payments by project owners may reduce the tax burden for other local tax payers
Paleontological & Cultural Resources	Construction activities pose a risk of disturbance of undiscovered cultural & paleontological resource sites and sites not yet adequately inventoried. Alt 2 crosses fewer sites of undetermined eligibility for National Register listing than Alt 4 and more than Alt 3.	Farming, cities and towns, residential areas, industrial and commercial areas. Construction of federal and state highways and county roads, railroads and railroad rights of way, communication facilities, military installations, and airports.	Various planned wind energy projects that would likely be implemented if the MATL line was constructed.	Each wind generation construction site would be required to inventory for cultural resources before disturbance. No cumulative impacts are anticipated.

TABLE 4.1-1 (Continued)
CUMULATIVE IMPACTS FROM PAST, PRESENT, AND FUTURE ACTIONS AND ALL ACTION ALTERNATIVES

Resource	Direct and Indirect Impacts From Action Alternatives	Past and Present Actions that Affect the Resource	Reasonably Foreseeable Future Actions That Could Affect the Resource	Cumulative Impacts
Visuals	Decline in aesthetic quality of a view shed, visual contrast or landscape change due to contrast with natural landscape. Visual impacts are dependent on proximity to viewers. Alt 4 would be visible to fewer residences (within ½ mile) and fewer travel corridor miles. Alt 3 would be most visible.	Existing constructed network of transmission lines. Installation of federal and state highways and county roads, communication facilities, military installations and airports.	Various planned wind energy projects that would likely be implemented if the MATL line was constructed.	Wind generation facilities would be highly visible and not compatible with the natural landscape. Operating windmills would generate a strobe effect and blade glint. Red tower lights at night would also adversely impact visual resources.

Notes:
Alt Alternative
BPA Bonneville Power Administration
EMF Electric and Magnetic Field
GPS Global Positioning System
HUD Housing & Urban Development
MATL Montana-Alberta Tie Line
MW Megawatt

4.3 Irreversible and Irretrievable Commitments of Resources

No irreversible and irretrievable commitments of resources would occur after decommissioning the transmission line at the end of its use. If concrete footings are used, the concrete would be left and irreversibly committed. Fuel used during construction and decommissioning would be irreversibly committed to the project. If wood structures are used, it is probable that these poles would not be available for future transmission projects and would be irreversibly committed to the project. Energy lost during the transmission process (line losses) would be irretrievably committed to the project.

4.4 Short-Term Use and Long-Term Productivity

Short-term uses of the study area are characterized by existing land use of the area as affected by the proposed Project and all activities that such land use facilitates. Long-term productivity involves sustaining the interrelationships of each resource in a condition sufficient to support ecological, social, and economic health.

All action alternatives would manage resources within requisite regulatory standards for air quality, water quality, cultural resource preservation, and wildlife management, and thus would maintain long-term productivity. Impacts from any of the action alternatives to visual resources and farming activities would not adversely affect long-term productivity of the resource. Beneficial impacts to socioeconomic resources would be realized from all action alternatives. Because Alternative 4 contains additional environmental mitigation measures for avoiding adverse impacts to farming, riparian areas, and surface water, this alternative presents the most protective alternative for the maintenance and enhancement of long-term productivity of the environment while benefiting socio-economic resources.

4.5 Regulatory Restrictions Analysis

Alternatives and mitigation measures are designed to further protect environmental, cultural, visual, and social resources, but add to the cost of the Project. Alternatives and mitigation measures that are required by federal or state laws and regulations to meet minimum environmental standards do not need to be evaluated for extra costs to the proponent.

Mitigation measures that might be imposed by DEQ would add up to 3 percent to the cost of the proposed Project (**Table 4.5-1**). Alternative 3 would be less expensive to build than the proposed Project. Alternative 4 would be up to 16 percent more expensive (**Table 4.5-1**). Mitigation measures whose costs can be estimated are precision mapping of unstable soils, archaeologist observation of construction, wetlands

delineation, and bonding for reclamation and revegetation. Monopole structures might also be required in some areas.

TABLE 4.5-1
REGULATORY RESTRICTIONS ANALYSIS

	Alternative 2			Alternative 3	Alternative 4
	with bond mitigation only	with additional mitigation measures	with monopoles and additional mitigation measures	no additional mitigation measures	with additional mitigation measures
Length (miles)	129.9 (all H-frames)	129.9 (all H-frames)	129.9 (25 miles monopoles, 104.9 miles H-frames)	121.6 (all H-frames)	139.9 (87.9 miles monopoles, 52 miles H-frames)
Construction cost[a]	$38,125,650	$38,125,650	$38,950,650	$35,689,600	$43,961,350
Precision mapping of unstable soils[b]	0	$11,000 (11 miles)	$11,000 (11 miles)	$6,000 (6 miles)	$24,000 (24 miles)
Professional archaeologist to observe construction[c]	0	$160,000 (35 sections)	$160,000 (35 sections)	$160,000 (37 sections)	$160,000 (35 sections)
Delineate wetlands on alignment through Teton County[d]	0	$11,500 (23 miles)	$11,500 (23 miles)	$13,000 (26 miles)	$13,000 (26 miles)
Estimated bond	$500,000	$500,000	$500,000	$420,000	$615,000
Total cost	$38,625,650	$38,808,150	$39,633,150	$36,288,600	$44,773,350
Percent change	0	+0.4	+3	-6	+16

[a] H-frame structures $293,500 per mile; long-span monopole structures $326,500 per mile (MATL 1/26/07).

[b] $1,000 per mile of alignment, 500 feet wide.

[c] $1,000 per day each for two full-time archeologists for 4 months.

[d] $1,000 per day per wetland specialist at 2 linear miles of alignment per day.

The costs of other measures, such as damage payments and requiring the use of conductors with dulled, non-reflective surfaces, are not readily quantifiable but would add to the total cost of the Project.

MATL has already negotiated easements across portions of the proposed Project alignment. The cost to MATL is unknown. If MATL has already paid for right-of-way access to lands that may be crossed by the Alternative 2 alignment, and that alignment is not permitted, MATL may lose the money already spent.

Alternative 2 with additional mitigation measures and the use of long-span monopoles on selected portions of the transmission line would impose the least regulation on MATL's private property rights while reducing environmental impacts.

5.0 Consultation and Coordination

MFSA requires that a project applicant consult with government agencies to identify their concerns over the facility's possible locations or effects on the environment, to discuss mitigation measures suggested by the agencies, and to explain how the agency concerns were incorporated into identifying the proposed project and alternative locations. MEPA and NEPA require DEQ and DOE to consult with local, federal, and state agencies about the proposed Project during the project scoping.

DEQ and DOE have consulted with the applicant, other federal and state agencies, local governments, and with individuals and non-government stakeholders. The consultation process took place during scoping and follow-up discussions. Interested individuals and organizations, affected federal, state, and local agencies, as well as affected Indian Tribes were invited to submit comments to DEQ and DOE. MFSA requires FWP, DNRC, MDT, the Department of Revenue, and the Public Service Commission to report their recommendations on this project to DEQ. Results of this reporting will be incorporated into the final EIS.

Initial Consultation and Coordination

The MFSA consultation process began on May 9, 2005, when MATL representatives met with DEQ personnel to introduce the proposed project and discuss issues or concerns during initial stages of the MFSA application process. MATL conducted open house sessions in Conrad and Cut Bank, Montana, on June 29 and 30, 2005, to provide the public an opportunity to meet representatives of the MATL project team and obtain information on the scope of the project. These open houses provided a venue for the public to voice and document their concerns and issues to MATL.

DEQ hosted an interagency project meeting on August 26, 2005, in Helena, Montana, to familiarize participating agency personnel with the proposed Project, to field agency questions, and to formalize agency roles and responsibilities. Attendees for the August 26, 2005 meeting included personnel from the following agencies:

- DEQ
- U.S. Department of Energy (DOE; via teleconference)
- Montana Fish, Wildlife and Parks (FWP)
- Montana Department of Transportation (MDT)
- Montana State Department of Commerce
- DNRC

MATL submitted a MFSA application to DEQ on December 1, 2005, and submitted additional information and/or amended the application on January 11, January 24, March 16, March 30, June 9, July 31, August 11, November 30, and December 15, 2006.

Public Scoping

Three public scoping meetings were held in Cut Bank, Conrad, and Great Falls in early December 2005. The scoping process is discussed in sections 1.5 and 1.6. A follow-up meeting was held in Cut Bank on June 26, 2006. The December 2005 and June 2006 public meetings were advertised in *The Valierian*, *The Cut Bank Pioneer Press*, *The Glacier Reporter*, and *The Shelby Promoter* for a 3-week period prior to meetings. Based on the additional public comments and to address deficiencies in the original December 1, 2005, application, MATL revised its MFSA application and provided additional information as discussed above.

DOE also published a Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings in the *Federal Register* on November 18, 2005 (70 FR 69962). A copy of this notice was transmitted by mail to land owners in the study area.

Formal and Informal Consultation and Coordination

In addition to the general meetings and telephone contacts, DEQ hosted a meeting in Great Falls on October 6, 2006, to share information about multiple projects that may involve construction in and around the NWE Great Falls 230-kV switch yard. Meeting attendees for the October 6, 2006, Great Falls meeting included personnel from the following agencies and organizations:

- DEQ
- MATL
- NorthWestern Energy Corporation
- Western Area Power Administration (WAPA)
- PPL Montana
- Montana Fish, Wildlife and Parks (FWP)
- Sheffels Farms, Inc.
- Joe Stanek Farms (area landowner)
- Tetra Tech

Concerned citizens have submitted written comments and suggestions and have called DEQ throughout the process.

DEQ, DOE, and MATL have sought consultation from other interested individuals, SHPO, and non-government organizations, as well as affected Indian Tribes. Formal consultation with SHPO is ongoing. **Table 5.0-1** provides a listing of the non-government stakeholders that were contacted by MATL or DEQ about the proposed MATL project.

MATL also sought consultation with the Blackfeet Tribal Council in Browning. On September 12, 2005, MATL and representatives from their project team met with Blackfeet Tribal Council members in Browning to discuss potential effects on tribal economic, social, and traditional lands interests. Blackfeet Tribal Council members, staff, and interested parties in attendance included: Owna Scott-Big Bull, William Big Bull, John Murray, Teri Lawrence, Wendy Running Crane, Brian Crawford, Terry Tatsey, Douglas Quade, Curly Bear Wagner, Joseph Weatherwax, Kenneth Augare, Gerald Wagner, Pat Schildt, and Earl Old Person. Following introductions and a brief project overview provided by MATL personnel, Blackfeet Councilmen, staff, and tribal members raised several substantive issues that were addressed or recorded for follow-up.

TABLE 5.0-1
MATL PROPOSED PROJECT
NON-GOVERNMENTAL ORGANIZATIONS CONTACTED

Organization	Contact Person	Contact Information
Ducks Unlimited	Layne Krumwiede Regional Director	1023 West St. Lewistown, MT 59457 (406) 538-9094
Northern Plains Resource Council	Teresa Erickson Staff Director	2401 Montana Ave. Suite 200 Billings, MT 59101 (406) 248-1154
Montana Environmental Information Center	Patrick Judge Energy Program Director	P.O. Box 1184 Helena, MT 59624 (406) 443-2520
Montana Stockgrowers Association	Steve Pilcher Director	420 No. California Ave. Helena, MT 59601 (406) 442-3420
Montana Stockgrowers Association	Keith Schott President	750 6th St. S.W. P.O. Box 1165 Great Falls, MT 50403 (406) 761-4596
The Nature Conservancy	Susan Benedict Program Associate	32 South Ewing Helena, MT 59601 (406) 443-0303
Montana Land Reliance	William Long Managing Director	324 Fuller Ave. P.O. Box 355 Helena, MT 59624-0355 (406) 443-7027
National Audubon Society, Montana Chapter	Janet Ellis Acting Exec. Director	P.O. Box 595 Helena, MT 59624 (406) 443-3949
Alternative Energy Resources Organization	--	432 N. Last Chance Gulch Helena, MT 59601 (406) 443-7272
Natural Heritage Program	Sue Crispin Director	1515 East 6th Avenue P.O. Box 201800 Helena, MT 59620
Sheffels Farms	Jim or John Sheffels Owners/operators	Box 1545 Great Falls, MT 59403
Stanek Property	Joe Stanek or Lyle Meeks	Lyle Meeks, P.E. NCI Engineering Inc. P.O. Box 6350 Great Falls, MT 59401
Diamond Valley Area Landowners	Katrina Martin	Ms. Katrina Martin Dutton, MT 59433 (406) 463-2337

6.0 List of Preparers

Department of Environmental Quality

Tom Ring	Project Coordinator	B.S., Fish and Wildlife Management B.S., Earth Science
Greg Hallsten	Project Coordinator	B.S., MS Range Management B.S., Wildlife Biology
Warren McCullough	EIS Reviewer	B.A., Anthropology M.S. Geology
Nancy Johnson	Visuals EIS Reviewer	B.S., Education M.S., Secondary Education M.L.A, Landscape Architecture
Jeff Blend	Socioeconomics Transmission System Analysis	B.S., Economics M.S., Economics PhD., Agricultural Economics

Tetra Tech

Cameo Flood	Assistant Project Manager Land Use, Farming and Ranching	B.S., Forestry
J. Edward Surbrugg	EIS Project Manager Vegetation/Wetlands	B.S., Range Ecology M.S., Land Rehabilitation Ph.D., Soil Science
Jim Dushin	Visual Simulations	A.AS., Forestry B.S., Wildlife Biology
Chris Reynolds	Geology and Soils	B. S., Geology M.S. Geochemistry/Hydrogeology
Ed Madej Stacy Pease	Database/GIS Wildlife/Fisheries	B.S., Biology and Oceanography M.S. Watershed Management B.S. Wildlife and Fisheries Science
Gary Sturm, P.E.	Engineering	B.S., Engineering Physics M.S., Civil Engineering
Alicia Stickney	Editorial Review, Community Resources	B.A., English M.S., Geology
Alice Stanley	MEPA/NEPA Specialist Hydrology	B.S., Geology M.S., Geology
Alane Dallas	Word Processing/ Admin Record	
Linda Daehn	Public Relations	B.S., Journalism
Dan Buffalo	Groundwater	M.S., Water Resources Management B.S., Biology
Chris Martin	Surface Water/Visuals	M.S. Coursework, Mathematics Teacher Cert/B.A. Equiv., Mathematics B.S., Watershed Science – Hydrology
Earl Griffith	Utilities and Transportation	B.S., Earth Science (Geology) M.S., Earth Science (Geology)

H. Mark Blauer	Human Health and Environment	PhD., Nuclear Chemistry M.S., Earth and Space Sciences B.S., Chemistry
Heidi Raymer	Electromagnetic Effects	B.S., Nursing B.S., Environmental Occupational Safety and Health
Jay Rose	Presidential Permit	B.S., Ocean Engineering J.D.
Amy Sivers	Hazardous Materials	M.S., Geosciences B.A., Geography
C. Ray Windmueller	Air	B.S., Petroleum Engineering
Nancy Linscott	Socioeconomics and Environmental Justice	B.S., Earth Science (Geology) M.S., Environmental Policy and Management
Keith Cron	Noise	M.S., Industrial Hygiene B.S., Science and Engineering

HRA

Weber Greiser	Cultural Resources	B.S., Anthropology M.A., Anthropology

Glossary

Affected Environment: Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action.

Air Pollution: Dust, fumes, smoke, other particulate matter, vapor, gas, odorous substances or any combination of these.

Alignment: The facility location.

Alluvial: Composed of alluvium or deposited by a stream or running water.

Alluvium: A general term for all deposits resulting from the operations of modern rivers and creeks, including the sediments laid down in riverbeds, floodplains, and fans at the foot of mountain slopes.

Ambient Air Quality Standard: An established concentration, exposure time, and frequency of occurrence of air contaminant(s) in the ambient air that shall not be exceeded.

Ambient Level: The existing level of air pollutants, noise, or other environmental factors used to describe background conditions (i.e., conditions before a project is implemented).

Analysis area: The area, defined for each resource, which the impact analysis addresses. The analysis boundary is different for each resource. For instance, the impact to soils or vegetation of a transmission pole may be confined to the structure footprint. The impact to land use may be the entire field in which the structure is placed.

Aquifer: Rock or sediment which is saturated with water and sufficiently permeable to transmit economic quantities of water to wells.

Benthic: of, relating to, or occurring at the bottom of a body of water.

Best Management Practices: A practice or combination of practices that are determined to be the most effective and practicable (including technological, economic, and institutional considerations) means of controlling point and nonpoint pollutants at levels compatible with environmental quality goals.

Big Game: Those species of large mammals normally managed as a sport hunting resource.

Centerline: See reference centerline.

Colluvium: Rock detritus and soil accumulated at the foot of a slope.

Community Noise Equivalent (CNEL): The energy average noise level in dB(A) over a 24-hour period with a 5 decibel penalty assigned to evening noise (7 p.m. to 10 p.m.) and a 10 decibel penalty assigned to nighttime noise (10 p.m. to 7 a.m.).

Conductor: Wires or lines that carry the electrical current in a transmission line.

Cooperative Electric Utility: A utility established to be owned by and operated for the benefit of those using its services.

Corona: Breakdown of the air, for example, on the surface of a high-voltage conductor, to produce air ions

CRP Lands: Farmlands for which a landowner receives an annual payment and cost-share assistance to establish long-term resource conserving covers. Administered by the U.S. Farm Service Agency.

Cultural Resources: Those fragile and nonrenewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering.

Cumulative effect: Environmental effects that result from the incremental impact of a Proposed Action in addition to other actions (past, present, or future) in the vicinity. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Current: The flow of electricity. A voltage will always try to drive a current. The size current that is driven depends on the resistance of the circuit.

dB(A): Stands for A weighted decibels. This decibel scale is used to approximate the way human hearing responds more to some frequencies than to others.

Dead end: A point on a distribution line where conductors terminate. A "double dead-end" has conductors terminating from two directions. Jumper wires are used to connect these two sets of conductors.

Dead end: (angle greater than 45°): A transmission line structure that would be used where the line turns at an angle greater than 45°. The structure used in this instance would be a 3 pole dead end.

Dead end: (angle less than 1°): A transmission line structure that would be used where the line turns less than 1°. The structure used in this instance would be a 4 pole dead end.

Direct impact: An effect that results solely from the construction or operation of the Proposed Action.

Easement: a general term for a limited right to make use of a property owned by another party.

Electric fields: Produced by voltages, irrespective of how much current is flowing and indeed whether any current is flowing at all. The electric field is the region around a conductor where a force will be experienced by a charge.

Electric Grid: All parts of an electrical system that are directly connected to each other through alternating current transmission lines. The term used in the industry is "Interconnection."

Electric Transmission Grid: The western grid moves power from many different generating plants to customers and their electric loads.

Electromagnetic interference: high frequency electrical noise that can cause radio and television interference.

Emergent Wetland: Any area of a vegetated wetland where non-woody vegetation (e.g. cattail, grasses, sedges) comprises at least 30 percent areal cover.

Eminent Domain: need description

Emission: The release of air contaminants into the ambient air.

Emission Standard: A requirement established under the federal Clean Air Act which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis.

EMFs: Electric and magnetic fields. Sometimes also defined as electromagnetic fields, which usually means the same thing

Environmental effect: Any change that an action may cause in the environment, including biological resources, land use, health and socioeconomic conditions, cultural heritage, geology, and paleontology.

Environmental Justice: Evaluation of potential disproportionately high and adverse impacts on low income and/or minority populations that may result from a Proposed Action.

Ephemeral Drainage: A stream or stream segment that flows only briefly in response to local precipitation and has no base flow.

Erosion: Wearing away of soil and rock by weathering and the actions of surface water, wind, and underground water.

Farmland of Statewide Importance: Land that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Criteria for defining and delineating this land are to be determined by the appropriate State agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

Federal Energy Regulatory Commission (FERC): The federal commission that regulates interstate and wholesale power transactions, including power sales and transmission services, as well as licensing of hydroelectric projects.

Fugitive Dust: A particulate emission made airborne by forces of wind, human activity, or both. Unpaved roads, construction sites, and tilled land are examples of areas that originate fugitive dust.

Heavy angle structure: A transmission line structure that would be used where the line turns between 30° and 45°.

Impact zone: The study area in which data are collected during the baseline study in order to make a determination of the impacts from construction, operation, maintenance, or decommissioning of a proposed facility or associated facility at preferred and reasonable alternative locations.

Indirect impact: An effect that is related to but removed from a Proposed Action by an intermediate step or process.

Insulators: a device made of porcelain or polymer that prevents energized conductors from coming in contact with each other. They also prevent conductors from energizing structures or facilities that are not designed to carry electricity. Bushings are a type of insulator.

Intermittent Stream: A stream that flows in a well-defined channel in response to precipitation and is dry for part of the year.

Kilovolt (kV): 1,000 Volts. The Volt is unit for measuring electrical potential, or "pressure."

Kilovolt ampere (kVA): The practical unit of apparent power, which is 1,000 volt-amperes. The volt-amperes of an electric circuit are the mathematical products of the volts and amperes of the client.

Kilowatt (kW): The electric unit of power equal to 1,000 watts.

Kilowatt-Hour (kWh): The basic unit of electric energy equal to one kilowatt of power supplied to or taken from an electric circuit for one hour.

Lacustrine: Of, relating to, formed in, living in, or growing in lakes.

Lek: A traditional courtship display area attended by male sharp-tailed grouse or sharp-tailed grouse.

Linear facility: An electric transmission line or pipeline covered under Montana's Major Facility Siting Act.

Load: The amount of electric power delivered or required at any specified point or points on a system. Load originates primarily at the power consuming equipment of the customer.

Megawatt (MW): One million watts.

Megawatt-hour (MWh): One thousand kilowatt-hours or one million-watt hours.

Medium angle structure: A transmission line structure that would be used where the line turns between 5° and 30°.

Mesic: Characterized by, relating to, or requiring a moderate amount of moisture.

Milligauss: A unit of measurement for magnetic fields.

Mitigation: An action to avoid, minimize, reduce, eliminate, replace or rectify the impact of a management practice.

Montana Major Facility Siting Act (MFSA): This law governs the siting of most large energy transporting facilities in Montana.

National Environmental Policy Act of 1969 (NEPA): This act requires federal agencies to evaluate the environmental effects of Proposed Actions.

Nitrogen Dioxide (NO_2): A reddish brown gas that is a component of smog.

Nitrogen Oxides (NO_x): A group of compounds containing varying proportions of nitrogen and oxygen.

No Action Alternative: The No Action alternative is required by MEPA regulations implementing NEPA. The No Action alternative provides a baseline for estimating the effects of other alternatives. Where a project activity is being evaluated, the No Action alternative is defined as one where No Action or activity would take place.

Nonattainment: Description of areas of the state not yet in compliance with National Ambient Air Quality Standards.

North American Electric Reliability Council (NERC): Council formed by electric utility industry in 1968 to promote the reliability and adequacy of bulk power supply in utility system of North America. NERC consists of ten regional reliability councils: Alaskan System Coordination Council (ASCC); East Central Area Reliability Coordination Agreement (ECAR); Electric Reliability Council of Texas (ERCOT); Mid-America Interconnected Network (MAIN); Mid-Atlantic Area Council (MAAC); Mid-Continent Area Power Pool (MAPP); Northeast Power Coordinating Council (NPCC); Southeastern Electric Reliability Council (SERC); Southwest Power Pool (SPP); Western Systems Coordinating Council (WSCC). **[is this more than we need to know?]**

Noxious Weed: Exotic (non-native) species of plants that proliferate and reduce the value of land for agriculture, forestry, livestock, wildlife, or other beneficial uses.

Operational right of way: MATL defined the transmission line operational right of way as 45 feet wide (22.47 feet to either side of the centerline).

Palustrine: Inland wetland that lacks flowing water and contains less than 0.05 percent ocean-derived salts.

Per capita personal income: According to the U.S. Bureau of Economic Analysis, the average income received per person. This includes income received from all sources such as wages, proprietor's income, rental income, and dividend income.

Personal income (Total): Income received from all sources.

Prime Farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland,

forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

Reference centerline: The facility location. DEQ approves a 500-foot-wide facility location (250 feet to either side of a presumed centerline unless there is a compelling reason to enlarge or narrow this width.

Right of way: The right to pass over property owned by another. The strip of land over which facilities such as roadways, railroads, pipeline, or power lines are built.

Salmonid: Any of a family (Salmonidae) of elongate bony fishes (as a salmon or trout) that have the last three vertebrae upturned.

Special Status Species: Those species of plants or animals that have a protective status designated by a state or federal agency because of general or localized population decline.

Substation: an installation which accomplishes one or more of the following:

- voltage changed from one level to another level.
- voltage regulated to compensate for system voltage changes.
- electric transmission and distribution circuits switched into and out of the system.
- electric power flowing in the transmission and distribution circuits measured.
- communication signals are connected to the circuits.

System reliability: the ability of a power system to provide uninterrupted service.

Tertiary: The Tertiary period or system of rocks.

Topsoil: Fertile soil or soil material, usually rich in organic matter, used to top dress disturbed areas. Topsoil is better suited to supporting plants than other materials.

Total Maximum Daily Load (TMDL): The total amount of a pollutant, per day, (including a margin of safety) that a waterbody may receive from any source (point, nonpoint, or natural background) without exceeding the state water quality standards. The term frequently refers to a plan or strategy to return a

waterbody to compliance with the water quality standards and therefore fully supporting of its designated uses.

Transmission capacity: the maximum load that a transmission line or network of transmission lines is designed to carry.

Transmission lines: High voltage electric conductors used for bulk movement of large volumes of power across relatively long distances.

Transmission restricted: the existing transmission capability is limiting the flow of electricity into and out of the area, in this case, Montana.

Utility: A regulated entity which exhibits the characteristics of a natural monopoly. For the purposes of electric industry restructuring "utility" refers to the regulated, vertically integrated electric company. "Transmission utility" refers to the regulated owner/operator of the transmission system only. "Distribution utility" refers to the regulated owner/operator of the distribution system which serves retail customers.

Viewshed: The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

Volatile Organic Compound (VOC): Any of several compounds of carbon that participate in atmospheric photochemical reactions, forming secondary pollutants.

Volt: A unit of electrical pressure. It measures the force or push of electricity. Volts represent pressure, correspondent to the pressure of water in a pipe. A volt is the unit of electromotive force or electric pressure analogous to water pressure in pounds per square inch. It is the electromotive force which, if steadily applied to a circuit having a resistance of one ohm, will produce a current one ampere.

Volt-amperes: The volt-amperes of an electric circuit are the mathematical products of the volts and amperes of the client.

Voltage: Measure of the force of moving energy.

Watt: The electric unit of power or rate of doing work. One horsepower is equivalent to approximately 746 watts.

Watt-Hour: One watt of power expended for one hour.

Western Systems Coordinating Council (WSCC): One of the ten regional reliability councils that make up the North American Electric Reliability Council (NERC).

Wetlands: Areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances, does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wide Area Augmentation System (WAAS): Augments GPS with additional signals for increasing the reliability, integrity, accuracy and availability of GPS.

Xeric: Characterized by, relating to, or requiring only a small amount of moisture.

Acronym List

ACSR	Aluminum Core Steel Reinforced
AESO	Alberta Electric System Operator
aMW	average megawatts
APLIC	Avian Power Line Interaction Committee
ARM	Administrative Rules of Montana
BLM	U.S. Bureau of Land Management
BPA	Bonneville Power Administration
CAMA	Computer Assisted Mass Appraisal
cfs	Cubic feet per second
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CO	Carbon monoxide
CRP	Conservation Reserve Program
dBA	A-weighted decibels
DEQ	Montana Department of Environmental Quality
DNRC	Department of Natural Resources & Conservation
DOE	U.S. Department of Energy
EEI	Edison Electric Institute
EIS	Environmental impact statement
EPA	U.S. Environmental Protection Agency
EMF	Electric and magnetic field
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Plan
FERC	Federal Energy Regulatory Commission
ft	feet
ft²	square feet
ft/day	feet per day
FWP	Montana Department of Fish, Wildlife and Parks
FWS	U.S. Fish and Wildlife Service
GIS	Geographical Information System
GPS	Global Positioning System
HUC	Hydrologic unit codes
HUD	Housing and Urban Development

Kcmil	1,000 circular mils
kV	Kilovolt
kV/m	Kilovolts per meter
kWh	Kilowatt hour
L_{dn}	day-night average noise level
LIDAR	Light Detection and Ranging
mA	Milliampere
MATL	Montana-Alberta Tie, Ltd.
MBMG	Montana Bureau of Mining and Geology
MCA	Montana Code Annotated
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MFSA	Major Facility Siting Act
mG	Milligauss
MHz	megahertz
MPDES	Montana Pollution Discharge Elimination System
MRMC	Missouri River Medical Center
mVA	Megavolt-amperes
MW	Megawatt
ND	No data
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NESC	National Electric and Safety Code
NHP	Montana Natural Heritage Program
NIEHS	National Institute of Environmental Health Sciences
NOAA	National Oceanic and Atmospheric Administration
NO_x	Nitrogen oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRIS	Natural Resource Information System
NWE	NorthWestern Energy
NWR	National Wildlife Refuge
NWS	National Weather Service
OASIS	Open Access Same Time Information System
OSHA	Occupational Safety and Health Act
PAB	Palustrine Aquatic Bed wetlands
Pb	Lead
PEM	Palustrine emergent

PM_{10}	Particulate matter smaller than 10 microns
$PM_{2.5}$	Particulate matter smaller than 2.5 microns
PPL	Pacific Power and Light
ppm	Parts per million
PSD	Prevention of Significant Deterioration
PUB	Palustrine Unconsolidated Bottom wetlands
PUS	Palustrine Unconsolidated Shore wetlands
SHPO	State Historic Preservation Office
SO_2	Sulfur dioxide
SSSA	Soil Science Society of America
SWPPP	Storm Water Pollution Prevention Plan
TBD	To be determined
TMDL	Total maximum daily load
USC	United States Code
WAAS	Wide Area Augmentation System
WAPA	Western Area Power Administration
WECC	Western Electricity Coordinating Council
WPA	Waterfowl Production Area
WRCC	Western Regional Climate Center
$\mu g/m^3$	Micrograms per square meter
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

8.0 Responses to Public Comments

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APPENDIX A:
DEQ LOCAL REALIGNMENT SEGMENTS PRELIMINARY ANALYSIS

Development of Alternative 4 (Possible Agency-Proposed Local Realignments)

During the development of Alternative 4, DEQ considered eight possible local realignments to address specific scoping issues (**Figure A1**). The eight local realignments are presented below as segments A1, A2, B1, B2, C1, C2, D, and E. In assembling Alternative 4 as a whole, DEQ selected segments A1, B2, C1, the north half of D, and E. As discussed in Section 2.5, the DEQ Director may select some of the segments included in Alternative 4 as mitigations to address land use and visual resource issues identified during scoping and in the analysis of Alternative 2. Therefore, all of the segment descriptions are included here for information. DEQ's analysis of these segments, and the information that helped in the selection of segments for Alternative 4, are presented here.

West Great Falls Realignment Segment A1

Alternative segment A1 is an alignment that would diverge from the southern 23 miles of Alternative 2, to avoid diagonal crossing of farm land, where possible. Where Alternative 2 would go directly north out of the Great Falls Substation, segment A1 would take a west-northwesterly path out of Great Falls paralleling the railroad and WAPA 230-kV transmission line, making use of an existing transportation corridor. The segment A1 alignment would head west and then north along the railroad and rejoin Alternative 2 where it leaves 8th Road. Segment A1 is the only segment that would run south and west of Benton Lake National Wildlife Refuge.

Shooting Sports Complex Realignment Segment A2

Approximately 1½ miles north of Great Falls, Alternative 2 would turn directly west for a mile and then run directly north along the west side of the Great Falls Shooting Sports Complex. Segment A2 is a 4.2-mile-long alignment that would continue directly north from Great Falls along the edge of cropland and parallel to the access road on the east side of the Great Falls Shooting Sports Complex. The alignment would parallel the existing 161-kV NWE transmission line between Great Falls and Havre. Segment A2 would rejoin Alternative 2 where it crosses Highway 87. This alignment would minimize crossing of farmland.

Diamond Valley Right Angle Realignment Segment B1

Segment B1 is a 5.9-mile-long alignment addressing the area in Teton county 2 to 5 miles south of the Teton River. In the headwaters of Kinnerely Coulee, segment B1 would run directly north where Alternative 2 turns northwest. After running directly north for approximately 2½ miles, segment B1 would turn directly west running approximately 3 miles until it would rejoin Alternative 2 in the vicinity of Hunt Coulee. This alignment would avoid diagonal crossing of farm land.

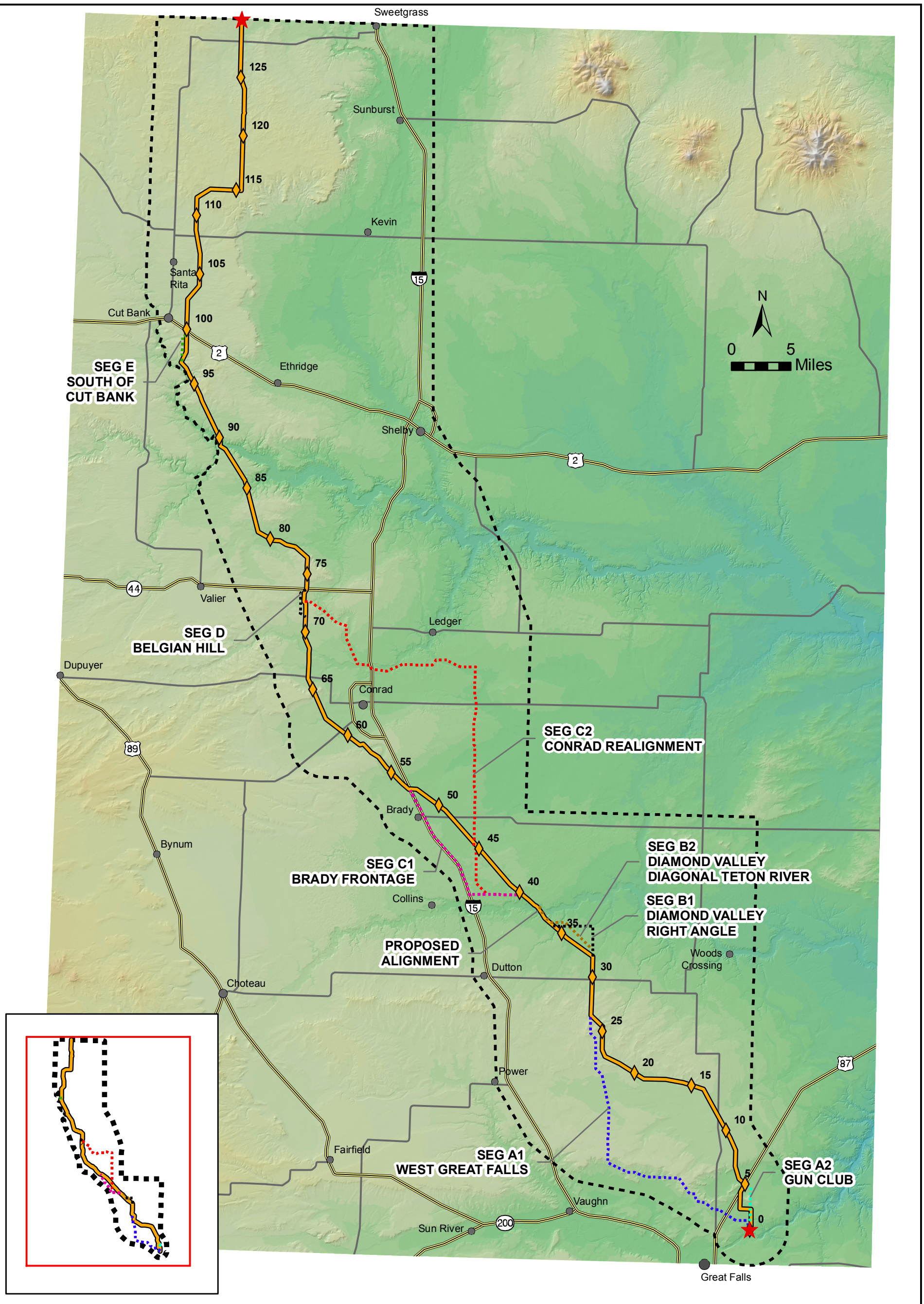


FIGURE A1
AGENCY PROPOSED
LOCAL REALIGNMENT
SEGMENTS

LEGEND

- ALT2 - ALIGNMENT
- ALT2 - MILEPOSTS
- SEGMENT A1 WEST GREAT FALLS
- SEGMENT A2 SHOOTING SPORTS COMPLEX
- SEGMENT B1 DIAMOND VALLEY RIGHT ANGLE
- SEGMENT B2 DIAMOND VALLEY AND TETON RIVER
- SEGMENT C1 BRADY FRONTAGE ROAD
- SEGMENT C2 CONRAD REALIGNMENT
- SEGMENT D BELGIAN HILL
- SEGMENT E SOUTH OF CUT BANK
- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA BOUNDARY
- MAJOR HIGHWAYS
- SECONDARY ROADS

GIS map by Ed Madej -TTEMI-HE FigA1_MATL_ALT4_Agency_Realignments_021607.mxd

Diamond Valley and Teton River Realignment Segment B2

Segment B2 is a 6.5-mile-long alignment that would diverge from Alternative 2 at the same location as segment B1. Where the segment B2 alignment intersects the Alternative 3 alignment and existing NWE 115-kV transmission line, it would parallel the line for approximately 3 miles until it would turn west to join Alternative 2 just south of the Teton River. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing. Segment B2 would then cross the Teton River just east of the location described in Alternative 2. Segment B2 would address a landowner concern over opening a new corridor rather than paralleling an existing line which already has disrupted farming practices in some fields.

Brady Frontage Road Realignment Segment C1

Segment C1 is a 15-mile-long realignment that would diverge from Alternative 2 approximately 8 miles southeast of Brady. Segment C1 would run directly west from the Alternative 2 along the northern edge of the Teton River bank to the Interstate 15 frontage road, and follow the frontage road for about 11 miles past the town of Brady to rejoin Alternative 2 about two miles north of Brady. Segment C1 would closely parallel the existing transportation corridor of Interstate 15 and the frontage road. Segment C1 would decrease crossing of farmland and avoid paralleling one pipeline.

Conrad Realignment Segment C2

Segment C2 is a 41-mile-long realignment that would diverge from Alternative 2 at the same location as segment C1. After approximately 3 miles running directly west, segment C2 would turn northwest for approximately 1½ miles, then turn directly north for approximately 18 miles, then turn directly west, heading for the Dry Fork of the Marias River. After the alignment crosses the existing WAPA 230-kV transmission line, approximately 2 miles south of Ledger, it intersects the river. The alignment generally parallels the Dry Fork of the Marias until it would cross Interstate 15, then head northwest along Big Flat Coulee for approximately 8 miles. The alignment would turn due west for approximately 1 mile before rejoining Alternative 2, approximately 4 miles north of the Dry Fork of the Marias River crossing. This segment would minimize diagonal crossing of farm land, avoid crossing farm land by traversing uncultivated land, and avoid residences and paralleling of pipelines.

Belgian Hill Realignment Segment D

Segment D is a 2.8-mile-long realignment that would move the alignment slightly west from the Alternative 2 alignment for 2 miles, just north of Belgian Hill, farther away from four residences (**Figure A2**). The alignment would generally parallel Alternative 2. Segment D would result in greater potential for general local acceptance. This segment would reduce visual impacts. Some diagonal crossing of farmland would be required.

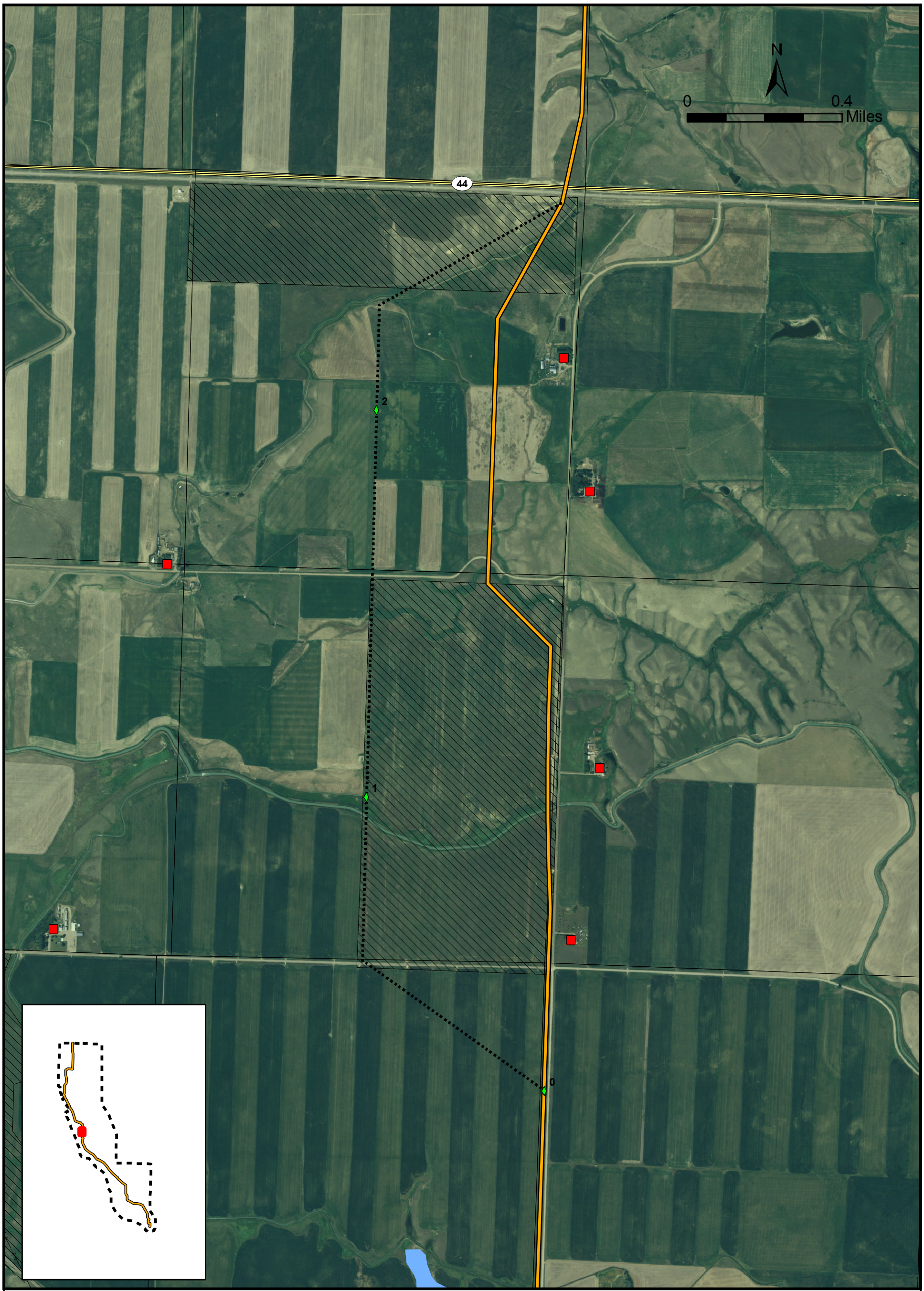


FIGURE A2
SEGMENT D
BELGIAN HILL

LEGEND

- ALT2 - ALIGNMENT
- SEGMENT D BELGIAN HILL
- MILEPOSTS
- RESIDENCES OR FARMSTEADS WITHIN 1 MILE OF ALIGNMENTS

EASEMENTS

- CONSERVATION RESERVE PROGRAM

- CITIES AND TOWNS
- ALIGNMENT END AND EXIT POINTS
- STUDY AREA
- EXISTING TRANSMISSION LINES
- MAJOR HIGHWAYS
- SECONDARY ROADS
- RIVERS AND STREAMS

GIS map by Ed Madej TTEMI-HE FigA2_MATL_Alt4_SegD_021507.mxd

South of Cut Bank Realignment Segment E

Segment E is a 2.5-mile-long realignment that would move the alignment approximately ¼ mile west for a 2-mile stretch, just south of the Alternative 2 intersection with Highway 2. Segment E would move the alignment to follow property boundaries better and is located farther away from residential areas and result in greater potential for general local acceptance. Segment E would generally parallel Alternative 2.

Land Use Segment Analysis

Table A1 shows how many miles of cropland and CRP would be crossed by each agency-proposed local realignment segment in comparison to the same segment of Alternative 2.

TABLE A1
AGENCY SEGMENT CROPLAND COMPARISON
TO ALTERNATIVE 2 SEGMENTS

	Linear Miles	Acres in 500-Foot Wide Buffer	Miles Crossing CRP or Cropland
Segment A1 **(West Great Falls)**	**27.3**	1,652	11.7
Alternative 2 Corresponding segment	**26.8**	1,621	17.2
Segment A2 **(Shooting Sports Complex)**	**4.2**	255	2.4
Alternative 2 Corresponding segment	**5.0**	301	2.4
Segment B1 **(Diamond Valley Right Angle)**	**5.9**	357	5.4
Alternative 2 Corresponding segment	**4.2**	256	3.7
Segment B2 **(Diamond Valley & Teton River)**	**6.5**	393	5
Alternative 2 Corresponding segment	**5.9**	358	5.2
Segment C1 **(Brady Frontage)**	**15.0**	904	9.3
Alternative 2 Corresponding segment	**13.3**	804	12.6
Segment C2 **(Conrad Realignment)**	**41.0**	2,481	28.3
Alternative 2 Corresponding segment	**33.0**	1,999	27.5
Segment D **(Belgian Hill)**	**2.8**	170	2.8
Alternative 2 Corresponding segment	**2.4**	73	2.2
Segment E **(South of Cut Bank)**	**2.5**	149	0
Alternative 2 Corresponding segment	**2.3**	140	.7

Notes: Alternative 4 would require the use of monopole on cropland or CRP. The overall Alternative 2 alignment crosses 92.7 miles of cropland and CRP.

Table A2 shows the types of land use crossed by Alternatives 2 and 3, and how many miles of farm land are crossed parallel to farming rows, perpendicular to farming rows, or at a diagonal to farming rows.

TABLE A2
TYPES OF LAND USE CROSSED BY ALTERNATIVES 2 AND 3 (MILES)

	Alternative 2				Alternative 3			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Irrigated cropland	1.4	0	0.1	1.5	0	0	6.8	6.8
Non-irrigated cropland	34.5	3.9	52.8	91.2	27.3	0	63.6	90.9
Rangeland	6.3	1.8	25.5	33.6	5.2	0.2	16.2	21.6
Road/Right of Way	0.2	0.9	0.2	1.3	0.1	0	0.2	0.3
Residential	0	0	0	0	0	0	0.1	0.1
Forest	0	0	0	0	0	0	0.1	0.1
Riparian	0.6	0	1.3	1.9	0.1	0	1.2	1.3
Water	0	0	0	0	0	0	0.1	0.1
Total Miles	43.0	6.6	79.9	129.5	32.7	0.2	88.3	121.2

Notes:

[a] parallel to north and south

[b] perpendicular to north and south

[c] diagonal to north and south

Sources: Orthophotographs 2005 (Montana NRIS 2006a); NRIS 2000; MATL 2006b; field verification; photographic interpretation

The agency-proposed local realignment segments were developed, in part, to reduce the impacts on farming from the proposed transmission line. The numbers of miles of crossings parallel to, perpendicular to, and diagonal to irrigated cropland, non-irrigated cropland, and rangeland are summarized for corresponding segments of Alternative 2 and agency-proposed local realignments (**Table A3**).

TABLE A3
MILES OF PARALLEL, PERPENDICULAR, AND DIAGONAL ACROSS CROPLAND AND RANGELAND ALTERNATIVE 2 AND CORRESPONDING AGENCY LOCAL REALIGNMENT SEGMENT

	Alternative 2				Agency-proposed Local Realignment Segment			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Segment A1 — West Great Falls								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	5.4	1.0	10.8	17.2	6.6	1.6	3.5	11.7
Rangeland/ Native	1.0	1.0	6.5	8.5	1.9	2.7	10.7	15.3
Other	0	0.9		0.9	0.1	--	0.1	0.2
Total Miles	**6.4**	**2.9**	**17.3**	**26.6**	**8.6**	**4.3**	**14.3**	**27.2**
Segment A2 — Great Falls Shooting Sports Complex								
Irrigated	-	-	-	-	-	-	-	-
Non-irrigated	1.7	0.5	0.2	2.4	1.7	0.1	0.6	2.4
Rangeland/ Native	1.1	0.0	0.7	1.8	1.1	--	0.7	1.8
Other	0.0	0.0	0.0	0.0	--	--	--	--
Total Miles	**2.8**	**0.5**	**0.9**	**4.2**	**2.8**	**0.1**	**1.3**	**4.2**
Segment B1 — Diamond Valley Right Angle								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	--	--	3.7	3.7	2.5	2.9	--	5.4
Rangeland/ Native	--	--	0.3	0.3	--	0.4	--	0.4
Other	--	--	--	--	--	0.1	--	0.1
Total Miles	**--**	**--**	**4.0**	**4.0**	**2.5**	**3.4**	**--**	**5.9**
Segment B2 — Diamond Valley Diagonal-Teton River								
Irrigated	0.0	0.0	0.0	0.0	-	-	-	-
Non-irrigated	0.0	0.0	5.2	5.2	0.5	0.8	3.7	5.0
Rangeland/ Native	0.0	0.0	0.8	0.8	0.2	0.5	0.7	1.4
Other	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1
Total Miles	**0.0**	**0.0**	**6.2**	**6.2**	**0.7**	**1.3**	**4.5**	**6.5**
Segment C1 — Brady Frontage								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	--	0.5	12.1	12.6	--	3.8	5.5	9.3
Rangeland/ Native	--	0.1	0.6	0.7	--	0.8	0.0	0.8
Other	--	--	0.2	0.1	--	--	4.9	4.9
Total Miles	**--**	**0.6**	**12.9**	**13.4**	**--**	**4.6**	**10.4**	**15.0**

TABLE A3
MILES OF PARALLEL, PERPENDICULAR, AND DIAGONAL ACROSS CROPLAND AND RANGELAND ALTERNATIVE 2 AND CORRESPONDING AGENCY LOCAL REALIGNMENT SEGMENT

	Alternative 2				Agency-proposed Local Realignment Segment			
	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total	Parallel[a]	Perpendicular[b]	Diagonal[c]	Total
Segment C2 — Conrad Realignment								
Irrigated	0.9	--	0.0	0.9	1.2	0.5	-	1.7
Non-irrigated	3.3	--	23.2	26.6	14.8	6.5	5.3	26.6
Rangeland/ Native	0.6	--	3.9	4.5	1.1	1.2	9.8	12.1
Other	0.1	--	0.9	0.9	0.2	-	0.4	0.6
Total Miles	**4.9**	**0.0**	**28.0**	**32.9**	**17.3**	**8.2**	**15.5**	**41.0**
Segment D — Belgian Hill								
Irrigated	0.4	--	--	0.4	--	--	--	--
Non-irrigated	1.0	--	0.6	1.6	2.8	--	--	2.8
Rangeland/ Native	0.2	--	0.1	0.1	--	--	--	--
Other	0.1	--	--	0.1	--	--	--	--
Total Miles	**1.7**	**0**	**0.7**	**2.4**	**--**	**--**	**--**	**2.8**
Segment E — South of Cut Bank								
Irrigated	--	--	--	--	--	--	--	--
Non-irrigated	0.7	--	--	0.7	--	--	0	--
Rangeland/ Native	0.8	--	0.8	0.8	2.4	--	--	2.4
Other	--	--	--	0	--	--	--	--
Total Miles	**1.5**	**0**	**0.8**	**1.5**	**--**	**--**	**--**	**2.4**

Notes:

[a] parallel to north and south

[b] perpendicular to north and south

[c] diagonal to north and south

-- Not applicable

Sources: Orthophotographs 2005 (Montana NRIS 2006a); MATL 2006b; field verification; photographic interpretation .

The following observations were made:

- Segment A1 (West Great Falls) is 0.6 miles longer than the segment it would replace in Alternative 2, however, it reduces the diagonal crossing of cropland from 10.8 miles to 3.5 miles.
- Segment A2 (Great Falls Shooting Sports Complex) increases the diagonal crossing of non-irrigated cropland from 0.2 in Alternative 2 to 0.6 miles in Alternative 4.
- Segment B1 (Diamond Valley Right Angle) is 1.9 miles longer than the segment it would replace in Alternative 2, however, it eliminates diagonal crossing of cropland, compared to 3.7 miles of diagonal crossing in Alternative 2 for this segment and moves the transmission line alignment onto existing utility corridors or other land uses (non-farm).
- Segment B2 (Diamond Valley Diagonal - Teton River) is 0.3 miles longer than the segment of Alternative 2 it would replace, but it reduces the diagonal crossing of cropland from 5.2 miles to 3.7 and shifts the crossing to parallel (0.5 miles) or perpendicular (0.8 miles).
- Segment C1 (Brady Frontage) is 1.6 miles longer than the segment it would replace in Alternative 2. It would reduce the diagonal crossing of cropland from 12.1 miles to 5.5 miles.
- Segment C2 (Conrad Realignment) is nearly 8 miles longer than the segment of Alternative 2 it would replace (41 miles compared to 32.9 miles), however, it would substantially reduce the diagonal crossing of cropland from 23.2 miles to 5.3 miles. Most (14.8 miles) of the cropland crossed would be parallel to the north-south orientation of crop rows. Approximately 6.5 miles would be crossed perpendicular to the rows. Additionally, more of the alignment (12.1 miles) would cross native vegetation or rangeland, compared to Alternative 2 which has 4.5 miles crossing those vegetation types.
- Segment D (Belgian Hill) is 0.4 miles longer than the segment it would replace in Alternative 2, however, it would remove all the diagonal crossing of cropland in this segment and increase the distance of parallel crossing from 1.4 miles to 2.8 miles. The parallel crossings or alignment near the edges of the fields would not interfere with farming activities as much as diagonal crossings.
- Segment E (South of Cut Bank) is 0.9 miles longer than the segment it would replace in Alternative 2, however, it would remove all crossings of cropland (including diagonal) and move the alignment onto native or rangeland vegetation.

Table A4 compares how many miles of transmission line cross CRP land or cropland under each agency-proposed local realignment segment and how many acres would be affected. Segments B1, C2, and D would result in a slight increase in acres removed from production because of the longer length of the line under these segments (see **Table A4)**.

TABLE A4
Acres of Production in CRP or Cropland Affected by Monopole Structures in Agency-proposed Local Realignments Compared to Alternative 2

	Alternative 2		Agency-proposed Local Realignment	
Segment	**Miles**	**Acres[a]**	**Miles**	**Acres[a]**
A1 West Great Falls	17.2	1.8	11.7	1.2
A2 Great Falls Shooting Sports Complex	2.4	0.3	2.4	0.3
B1 Diamond Valley Right Angle	3.7	0.4	5.4	0.6
B2 Diamond Valley Diagonal-Teton River	5.2	0.5	5.0	0.5
C1 Brady Frontage	12.6	1.3	9.3	1.0
C2 Conrad Realignment	27.5	2.8	28.3	3.0
D Belgian Hill	2.0	0.2	2.8	0.3
E South of Cut Bank	0.7	0.1	0.0	0.0

Notes:

[a] Acres rounded to nearest 0.01. Calculation based on 0.01 acres per structure at a structure every 500 feet (10.5 structures per mile)

Sources: Orthophotographs, 2005 (Montana NRIS 2006a), NRIS 2000, MATL 2006b; field verification; photographic interpretation

Some segments (B1 - Diamond Valley Right Angle, C1 – Conrad Realignment and D - Belgian Hill) increase the length of power line crossing farmland and CRP slightly (see **Table A4**) over Alternative 2 for those segments.

Conservation Easements and Special Management Areas

Linear miles of lands under federal/state special management and those lands currently under federal or state conservation easements (wetland easements, CRP, and FWP easements) are summarized in **Table A5** for each alignment. Segments A1 and A2 would eliminate crossing the Great Falls Shooting Sports Complex. Some agency-proposed local realignments would increase the number of miles crossing CRP over corresponding Alternative 2 segments they would replace.

TABLE A5 MILES OF FEDERAL/STATE SPECIAL MANAGEMENT AREAS AND CONSERVATION EASEMENTS CROSSED			
	Alternative 2 Corresponding Segment	**Alternative 3**	**Agency-proposed Local Realignments**
State Land (FWP) – Great Falls Shooting Sports Complex			
Segment A1 (West Great Falls)	0.73	--	0
Segment A2 (Great Falls Shooting Sports Complex)	0	0.51	0.76
Segment B1 (Diamond Valley Right Angle)	--	--	--
Segment B2 (Diamond Valley Diagonal-Teton River)	--	--	--
Segment C1 (Brady Frontage)	--	--	--
Segment C2 (Conrad Realignment)	--	--	--
Segment D (Belgian Hill)	--	--	--
Segment E (South of Cut Bank)	--	--	--
Montana State Trust Land (DNRC)			
Segment A1 (West Great Falls)	3.69	--	2.56
Segment A2 (Great Falls Shooting Sports Complex)	0.12	--	0.08
Segment B1 (Diamond Valley Right Angle)	0.00	--	0.00
Segment B2 (Diamond Valley Diagonal-Teton River)	1.24	--	1.24
Segment C1 (Brady Frontage)	1.14	--	2.68
Segment C2 (Conrad Realignment)	1.70	--	4.03
Segment D (Belgian Hill)	0.00	--	0.00
Segment E (South of Cut Bank)	0.00	--	0.00
Conservation Easements			
Segment A1 (West Great Falls)	(CRP) 5.32 (Stewardship) 0.12	--	10.04
Segment A2 (Great Falls Shooting Sports Complex)	0.00	--	0.00
Segment B1 (Diamond Valley Right Angle)	0.00	--	0.00
Segment B2 (Diamond Valley Diagonal-Teton River)	1.54	--	1.54
Segment C1 (Brady Frontage)	0.00	--	3.10
Segment C2 (Conrad Realignment)	2.16	--	4.17
Segment D (Belgian Hill)	1.36	--	1.48
Segment E (South of Cut Bank)	1.04	--	0.90

Notes:
-- = not applicable

Planned Land Use

The Segment A1 West Great Falls local alignment crosses the planned Kyles Addition subdivision. No residences are under construction or completed in this subdivision.

Wetlands Segment Analysis

The length of each segment and the wetlands affected by each segment are shown in **Table A6**, along with the length of the corresponding segment of Alternative 2 which it could replace.

TABLE A6
WETLANDS AFFECTED BY SEGMENTS
AGENCY-PROPOSED LOCAL REALIGNMENT

Alternative Comparison	Segment Length	Palustrine PEM	Palustrine PUS, PUB, & PAB	Lacustrine	Riverine	Total
	(miles)	(acres)	(acres)	(acres)	(acres)	(acres)
West Great Falls Segment A1	27.3	13.25	0.43	0.0	0.0	13.68
Corr. Alt. 2 Segment	26.8	15.72	1.07	0.78	0.0	17.57
Great Falls Shooting Sports Complex Segment A2	4.2	0.0	0.13	3.21	0.0	3.34
Corr. Alt. 2 Segment	5.0	4.13	0.0	0.78	0.0	4.91
Diamond Valley Right Angle Segment B1	5.9	<1 Est.	ND	ND	<1 Est.	ND
Corr. Alt. 2 Segment	4.2	<1 Est.	ND	ND	<1 Est.	ND
Diamond Valley Diagonal-Teton River Segment B2	6.5	1-2	ND	ND	2-3	ND
Corr. Alt. 2 Segment	5.9	1-2	ND	ND	2-3	ND
Brady Frontage Segment C1	15.0	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	13.3	10.12	1.98	0.0	0.0	12.10
Conrad Realignment Segment C2	41.0	18.10	2.01	0.0	0.0	20.11
Corr. Alt. 2 Segment	33.0	13.75	1.98	0.0	0.0	15.73
Belgian Hill Segment D	2.8	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	2.4	0.0	0.41	0.0	0.0	0.41
South of Cut Bank Segment E	2.5	0.0	0.0	0.0	0.0	0.0
Corr. Alt. 2 Segment	2.3	0.0	0.0	0.0	0.0	0.0

Notes:

Alt. Alternative
Corr. Corresponding
PEM Palustrine Emergent wetlands
PUS Palustrine Unconsolidated Shore wetlands
PUB Palustrine Unconsolidated Bottom wetlands
PAB Palustrine Aquatic Bed wetlands
Est. estimated using the 2005 aerial photographs
ND No Data

Potential impacts to wetlands for all eight local realignment segments were evaluated using the wetland data provided in **Table A6**. Total potential wetlands recorded along each local realignment segment were compared to the total wetlands recorded for the corresponding segment of Alternative 2. The total wetland acres was also segregated into four main wetland categories (2 palustrine classes, 1 lacustrine, and 1 riverine) to better evaluate the types of wetlands that each segment may impact. Total wetland acreage does not include any wetlands that may exist in Teton County for the portion of the segments where no official wetland data currently exist. The 2005 National Agricultural Imagery Program aerial photographs were used to visually identify observable wetlands along the local realignment segments in Teton County and to estimate the approximate number of wetlands for these alignments. Even though the wetland acreage could not be quantified from the aerial photographs, it was determined that no single large wetland or concentration of wetlands existed that could not be spanned using 500 foot span lengths.

Potential impacts to wetlands for the local realignment segments were compared only to the corresponding segments of Alternative 2 for which each could substitute. As was determined for the entire analysis area, the majority of the wetlands along all local realignment segments are classified as palustrine, emergent wetlands (PEM).

Segment A1 (West Great Falls) The A1 segment traverses around the southern and western sides of Benton Lake NWR area and would potentially impact 3.89 fewer acres of wetlands, compared to the corresponding segment of Alternative 2. Several smaller areas with palustrine and lacustrine wetlands exist directly north of Great Falls (Black Horse Lake area) and along the western side of Benton Lake NWR. A1 would impact fewer wetlands primarily because it is located along steeper slopes compared to crossing a more flat bench area. No riverine wetlands are delineated along segment A1 facility location. However, segment A1 crosses the Lake Creek channel in Teton County and could potentially impact a small riverine wetland (possibly about 1 acre) at that location.

Segment A2 (Great Falls Shooting Sports Complex Realignment) This 4.2 mile long segment runs north from the Great Falls 230-kV switch yard along the edge of cropland and parallel to the access road to the Great Falls Shooting Sports Complex. The Segment A2 centerline crosses over an actively used gun club, but would not be located over any existing or planned buildings. The segment A2 facility location would potentially impact 1.57 fewer acres of wetlands compared to the corresponding segment of Alternative 2. The primary difference between these two alignments was that the segment A2 realignment would cross a larger portion of the Black Horse Lake Flat that has been mapped as a lacustrine wetland.

Segment B1 (**Diamond Valley Right Angle)** This 5.9 mile long B1 segment is located in Diamond Valley area of Teton County, approximately 2 to 5 miles south of the Teton River. The types and amounts of wetlands that would be impacted within the 500 foot wide facility location of segment B1 are very similar to those that occur along the 4.2 mile long corresponding Alternative 2 portion. Both segment B1 and the corresponding Alternative 2 centerlines would cross Hunt Coulee; segment B1 would cross this coulee at a straight east to west angle, while the Alternative 2 would cross Hunt Coulee at a southeast to northwest angle. Hunt Coulee has palustrine emergent wetlands (estimated to be less than one acre) and a small area of riverine wetlands (estimated to be less than one acre) in the bottom of the coulee. These wetland areas could be spanned causing minimal impacts to wetlands under both the B1 segment and Alternative 2 alignments.

Segment B2 (Diamond Valley and Teton River) This 6.5 mile long segment B2 is also located in the Diamond Valley area of Teton County, but would utilize the same alignment as Alternative 3 for approximately 3.25 miles where it would parallel the existing NWE 115-kV transmission line. Segment B2 would cross Hunt Coulee approximately ¾ mile north of the Alternative 2 crossing and ¼ mile north of the segment B1 crossing of Hunt Coulee. This alignment would also extend further north and includes a modified crossing of the Teton River that avoids some cropland. The types and amounts of wetlands that would be impacted within the 500 foot wide facility location for segment B2 are very similar to those that occur along the 5.9 mile long corresponding Alternative 2 portion. Both alternative alignments would cross small areas with palustrine emergent wetlands (estimated at one to two acres) and a small area of riverine wetlands (estimated at two to three acres) in the bottom of Hunt Coulee and the Teton River. All wetland areas visually identified on the 2005 aerial photographs for segment B2 could be spanned.

Segment C1 (Brady Frontage Road) Segment C1 is a 15.0 mile long alignment that runs directly east - west along the northern edge of the Teton River bank and then parallels the Interstate 15 frontage road for approximately 11 miles, connecting back with the Alternative 2 alignment just north of Brady, Montana. Segment C1 would potentially impact 12.1 fewer acres of wetlands compared to the Alternative 2 alignment through this area. There are no wetlands of any type mapped along the Brady Frontage Road alignment. Several areas with palustrine wetlands (total of 12.1 acres) exist along the corresponding segment of Alternative 2 through this area.

Segment C2 (Conrad Realignment) Segment C2 is a 41.0 mile long alignment that runs around the Town of Conrad on the east and north sides. Segment C2 takes off from Alternative 2 at the same location as segment C1. Both Alternative C1 and C2 segments would be in the same alignment for approximately 3.25 miles where segment C2 would begin to run north. This alternative alignment would travel north for approximately 20 miles where it would turn west and continue for approximately 18 miles where it

would rejoin Alternative 2. This alternative alignment would cross several major coulees (South Pondera, Pondera, Favot, and Big Flat) and the Dry Fork Marias River.

Segment C2 would potentially impact 4.38 more acres of total wetlands compared to the corresponding Alternative 2 alignment through this area. The main reason for the increased number of wetlands crossed by segment C2 is the higher proportion of coulees and unfarmed drainages that were used by this alternative in the avoidance of farmed land. Small areas with palustrine and riverine wetlands exist along most of the major coulees and along the Dry Fork Marias River crossing. Segment C2 also crosses slightly larger and more defined drainages due to its more eastern location. Drainages generally flow west to east in this area and tend to have more defined channels as they flow toward the Missouri River.

Segment D (Belgian Hill) Segment D is a relatively short (2.8 mile) alignment located in the Belgian Hill area. This alternative segment generally parallels Alternative 2, but is located approximately ½ mile to the west. This alignment segment was developed primarily to minimize visual impacts to four residences located along the Alternative 2 alignment. Segment D would potentially impact 0.41 fewer acres of palustrine wetlands compared to Alternative 2 through this locale.

Segment E (South of Cut Bank) Segment E is a relatively short (2.5 mile) segment located in an area southeast of Cut Bank. This alternative segment also parallels the Alternative 2 alignment approximately ½ mile to the west. This alignment segment was developed primarily to minimize visual impacts to residences located along the Alternative 2 alignment and to avoid paralleling a buried gathering pipeline for the oil wells in the local area. There are no mapped wetlands along either segment E or the corresponding Alternative 2 alignment in this locale.

Vegetation Segment Analysis

Rangeland vegetation, such as grassland, improved pasture, seeded grasslands, shrubland, badland, riparian and wetlands, and forested cover types, would be removed by the construction of access roads and structures, and at construction staging areas. Maintenance activities would not likely result in additional ground disturbance. Linear miles of rangeland cover types affected by alternative are presented in **Table A7**. Disturbance resulting from staging areas would be similar for Alternatives 2 and 3.

Agency-proposed local realignment segments total approximately 38.5 miles. The comparable segments of Alternative 2 total almost 20 miles (**Table A8**), nearly doubling the grassland the rangeland cover types under alternative segments. The increased crossing in rangeland cover types would result in more tower structures and access roads, thus increasing rangeland impacts. Disturbance due to maintenance activities would also increase over the life of the project due to increased structure and road

placement in rangeland and vegetation (**Table A9**). Disturbance resulting from staging areas would be similar to those of Alternatives 2 and 3.

TABLE A7
Native Vegetation Cover Types Crossed by Alternatives 2, 3, and 4

Rangeland Cover Types	Alternative 2		Alternative 3		Agency-proposed Local Realignments	
	Miles	Total Land Cover (percent)	Miles	Total Land Cover (percent)	Miles	Total Land Cover (percent)[a]
Grassland/ Shrubland	33.6	25.9	21.6	17.8	A1 = 15.3 A2 = 1.8 B1 = 0.4 B2 = 1.3 C1 = 0.8 C2 = 12.0 D = 2.8 E = 2.5	A1 = 56.2 A2 = 42.2 B1 = 7.3 B2 = 19.9 C1 = 5.2 C2 = 29.1 D = 99.0 E = 100.0
Riparian	1.9	1.5	1.3	1.1	A1 = 0.2 A2 = 0.03 B1 = 0.1 B2 = 0.2 C1 = 0.05 C2 = 1.0 D = 0.04 E = 0.0	A1 = 0.7 A2 = 0.7 B1 = 2.2 B2 = 2.8 C1 = 0.3 C2 = 2.3 D = 0.01 E = 0.0
Forest (Cottonwood)	0.0	0.0	0.1	0.1	B2 = 0.04[b]	B2 = 0.6
Total	35.5	27.4	23.0	19.0	--	--
Total Line Length	129.9	--	121.6	--	--	--

Notes:
a Percent of segment..
b Found only in segment B_2
Source: Orthophotographs 2005 (Montana NRIS 2006a) analysis of land cover in vegetation analysis area, October 2006.
-- not applicable

TABLE A8
LINEAR MILES OF VEGETATION CHANGE BETWEEN ALTERNATIVE 2 AND AGENCY-PROPOSED LOCAL REALIGNMENTS

Native Vegetation Cover Types	Alternative 2 (miles)	Agency-proposed Local Realignments (miles)
Rangeland	A1 = 8.5 A2 = 1.8 B1 = 0.3 B2 = 0.8 C1 = 0.6 C2 = 4.5 D = 0.3 E = 1.6	A1 = 15.3 A2 = 1.8 B1 = 0.4 B2 = 1.3 C1 = 0.8 C2 = 12.0 D = 2.8 E = 2.5
Riparian	A1 = 0.0 A2 = 0.0 B1 = 0.2 B2 = 0.2 C1 = 0.1 C2 = 0.8 D = 0.1 E = 0.0	A1 = 0.2 A2 = 0.03 B1 = 0.1 B2 = 0.2 C1 = 0.05 C2 = 1.0 D = 0.04 E = 0..0
Forest (Cottonwood)	No Data	B2 = 0.4 [a]

Note:
a Found only in segment B_2
Source: Orthophotographs 2005 (Montana NRIS 2006a) of land cover in vegetation analysis area, October 2006

TABLE A9
ESTIMATED ACRES OF DISTURBANCE DUE TO H-FRAME STRUCTURES IN RANGELAND VEGETATION

Rangeland Cover Types	Alternative 2			Agency-proposed Local Realignments		
	Miles[a]	Number of Structures[b]	Acres[c]	Miles	Number of Structures	Acres
Grassland/ Shrubland	18.4	121	0.1	36.9	244	0.2
Riparian	1.4	9	<0.01	1.6	11	<0.01
Total	19.8	130	0.1	38.5	255	0.2

Notes:
a Segment total.
b Average 800-foot span between H-frame structures.
c Based on 36 square feet occupied by an H-frame structure.

Riparian Vegetation

The effects to riparian vegetation from the agency-proposed local realignments would be similar to those of Alternative 2 because both alternatives cross similar amounts of riparian habitat (**Table A9**).

Species of Concern

The effects on species of concern from agency-proposed local realignments would be the same as Alternative 2 because both alternatives cross similar amounts of riparian habitat where these species are likely to occur (**Table A10**).

Weed Control

The agency-proposed local realignments would cross more native vegetation than Alternative 2 (**Table A8**). This increase in land area potentially exposed to disturbance and noxious weed invasion would require greater diligence, expense, and coordination to successfully implement a noxious weed control plan (**Table A9**). The MATL Noxious Weed and Invasive Plant Control Plan (**Appendix C**) would adequately reduce the increased risk of noxious weed spread in the analysis area.

Wildlife Segment Analysis

Big Game Species

Impacts on big game species would not be expected. Pronghorn and mule deer does with fawns could be displaced by activities during late spring and early summer, but disturbance within a given portion of the line would be temporary and animals could easily use adjacent habitat during disturbance periods. Activities would not disturb wintering animals as the construction activities would occur during the spring and summer months. The proposed and alternative transmission line alignments would cross through mule deer winter range and there would be some permanent loss of habitat as a result of structures and access roads (see **Table A10).** This habitat loss would not impact mule deer as this is a minor loss relative to the amount of available habitat within the region.

TABLE A10 MULE DEER WINTER RANGE IMPACTED BY ALTERNATIVES				
MULE DEER WINTER RANGE	Alternative			
	2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Miles of Mule Deer Winter Range Bisected by Transmission Line	Alternative 2 Segment A 19	20	A1 = 1.8 A2 = 1.8 B1 = 0 B2 = 1.0 C1 = 0.67 C2 = 9.3 D = 0 E = 0	A1 = 4.2 A2 = 1.8 B1 = 0.9 B2 = 3.0 C1 = 4.8 C2 = 8.8 D = 0 E = 0

Notes:
a Segment of the Alternative 2 alignment that corresponds with the agency-proposed local realignment segment.
b Agency-proposed local realignment segments that correspond to the Alternative 2 segments.

Threatened and Endangered Segment Analysis

The alternative alignments traverse the known habitat range of four Species of Concern and one federally threatened species. **Table A11** lists the linear miles of special status species' habitat range along each of the two action alternatives and local realignments.

TABLE A11 LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE AND AGENCY-PROPOSED LOCAL REALIGNMENTS					
Common Name	**State Rank**	**Alternative**			
		2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Black-crowned night-heron	S3B	11.2	9.1	A1 = 11.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 2.6 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Black-necked stilt	S3, S4B	11.2	9.1	A1 = 11.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 2.6 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0

TABLE A11
LINEAR MILES OF SPECIAL STATUS SPECIES' HABITAT RANGE BY ALTERNATIVE AND AGENCY-PROPOSED LOCAL REALIGNMENTS

Common Name	State Rank	Alternative			
		2	3	2 Corresponding to Agency-proposed Local Realignments[a]	Agency-proposed Local Realignment by Segments[b]
Burrowing owl	S2B	4.2	3.9	A1 = 4.2 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Ferruginous hawk	S2B	6.5	0	A1 = 6.5 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 5.8 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Peregrine falcon	S2B	2.5	2.2	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 0 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0
Total for All species	--	19.9	11.3	A1 = 17.7 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0	A1 = 8.4 A2 = 0 B1 = 0 B2 = 0 C1 = 0 C2 = 0 D = 0 E = 0

Notes:

Source: MTNHP. 2005. GIS Analyses of Element Occurrence Data. Montana Natural Heritage Program, Helena, Montana. Available at: **http://nhp.nris.state.mt.us/mbd**

State: S2 = Imperiled because of rarity, or because of other factors demonstrably making it very vulnerable to extinction throughout its range; B = a state rank modifier indicating breeding status for a migratory species; S3 = vulnerable because of rarity, or found in restricted range even though it may be abundant at some of its locations; S4 = apparently secure, though it may be quite rare in parts of its range, especially at the periphery; S1 = critically imperiled because of extreme rarity, or because of some factor of its biology making it especially vulnerable to extirpation; SH = Historical, known only from records over 50 years ago; may be rediscovered; N = non-breeding.

a Segment of the Alternative 2 alignment that corresponds with the agency-proposed local realignment segment.
b Agency-proposed local realignment segments that correspond to the Alternative 2 segments.

Socioeconomics Segment Analysis

The socioeconomic impacts described above are essentially equal for all of the alternatives and segments with the exception of differences in the estimated property tax revenue available to each affected county depending on the mileage of the line that would ultimately be constructed within each county's jurisdiction (**Table A12**).

Cultural Resources Segment Analysis

The Class 1 cultural resource searches resulted in the identification of three previously recorded sites considered eligible for the NRHP in sections along the agency-proposed local realignment segments. These sites include the Rainbow Dam Road, an historic transmission line, and the Burlington Northern-Santa Fe Railroad. There are 20 sites where NRHP-eligibility has not been determined, is unknown, or is unresolved. This group includes six tipi ring sites, two lithic scatter sites, two prehistoric camp sites, an historic road or trail, five homesteads, two historic irrigation systems, one historic trash dump, and one historic mining site.

Two NRHP-eligible sites, 24CA416 the Rainbow Dam Road and 24CA1040 an historic transmission line just north of the Missouri River, are located in sections containing both segment A1 and segment A2. The sections crossed by segment A1 contains three of the tipi ring sites, the two lithic scatter sites, the two prehistoric camp sites, three of the homesteads, and the historic mining site in the category of undetermined, unknown, or unresolved NRHP eligibility.

There are no previously recorded cultural resource sites in sections along either segment B1 or segment B2.

One section along segment C1 contains one tipi ring site of undetermined NRHP eligibility. Several sections along segment C2 contain two of the tipi ring sites, two of the homesteads, one of the historic irrigation systems, and the one historic trash dump in the category of undetermined, unknown, or unresolved NRHP eligibility.

Two sections along segment D contain the historic road or trail and one of the historic irrigation systems both of undetermined NRHP eligibility. Two sections along segment E contain the NRHP-eligible Site 24GL191, the Great Northern Railroad – now part of the Burlington Northern-Santa Fe.

TABLE A12 TAX BENEFIT ESTIMATES FOR ALTERNATIVES AND SEGMENTS							
	Alignment Length (Miles)	**Value $/Mi.**	**Estimated Value in County (BxC)**	**Class 9 Tax Rate (Valuation Ratio): 12%**	**Taxable Value (DxE)**	**Avg. Rural Mill Levy**	**Property Tax (FxG)**
Cascade							
Alternative 2	12.76	$363,284	$4,635,504	0.12	$556,260	0.50412	$280,422
Alternative 3	12.31	$363,284	$4,472,026	0.12	$536,643	0.50412	$270,533
Alternative 4							
Segment A1 - Alt 2	12.75	$363,284	$4,631,871	0.12	$555,825	0.50412	$280,202
Segment A1 - Alt 4	19.8	$363,284	$7,193,023	0.12	$863,163	0.50412	$435,138
Chouteau							
Alternative 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Alternative 3	10.21	$363,284	$3,709,130	0.12	$445,096	0.43959	$195,660
Alternative 4							
Segment A1 - Alt 2	5.87	$363,284	$2,132,477	0.12	$255,897	0.43959	$112,490
Segment A1 - Alt 4	0	$363,284	$0	0.12	$0	0.43959	$0
Glacier							
Alternative 2	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Alternative 3	37.34	$363,284	$13,565,025	0.12	$1,627,803	0.53745	$874,863
Alternative 4	40.41	$363,284	$14,680,306	0.12	$1,761,637	0.53745	$946,792
Pondera							
Alternative 2	45.69	$363,284	$16,598,446	0.12	$1,991,814	0.52162	$1,038,970
Alternative 3	44.44	$363,284	$16,144,341	0.12	$1,937,321	0.52162	$1,010,545
Alternative 4							
Segment C1 - Alt 2	4.11	$363,284	$1,493,097	0.12	$179,172	0.52162	$93,460
Segment C1 - Alt 4	7.12	$363,284	$2,586,582	0.12	$310,390	0.52162	$161,906
Segment C2 - Alt 2	28.86	$363,284	$10,484,376	0.12	$1,258,125	0.52162	$656,263
Segment C2 - Alt 4	34.66	$363,284	$12,591,423	0.12	$1,510,971	0.52162	$788,153

TABLE A12
TAX BENEFIT ESTIMATES FOR ALTERNATIVES AND SEGMENTS

	Alignment Length (Miles)	Value $/Mi.	Estimated Value in County (BxC)	Class 9 Tax Rate (Valuation Ratio): 12%	Taxable Value (DxE)	Avg. Rural Mill Levy	Property Tax (FxG)
Teton							
Alternative 2	25.16	$363,284	$9,140,225	0.12	$1,096,827	0.4991	$547,426
Alternative 3	17.32	$363,284	$6,292,079	0.12	$755,049	0.4991	$376,845
Alternative 4							
Segment A1 - Alt 2	8.13	$363,284	$2,953,499	0.12	$354,420	0.4991	$176,891
Segment A1 - Alt 4	7.47	$363,284	$2,713,731	0.12	$325,648	0.4991	$162,531
Segment C1 - Alt 2	4.12	$363,284	$1,496,730	0.12	$179,608	0.4991	$89,642
Segment C1 - Alt 4	7.89	$363,284	$2,866,311	0.12	$343,957	0.4991	$171,669
Segment C2 - Alt 2	4.12	$363,284	$1,496,730	0.12	$179,608	0.4991	$89,642
Segment C2 - Alt 4	6.29	$363,284	$2,285,056	0.12	$274,207	0.4991	$136,857
Notes:							
Sources: Mullen 2006							
Montana Department of Revenue 2004							

Notes:
a Mullen 2006
b Montana Department of Revenue 2004
$/Mi. = dollars per mile

Visuals Segment Analysis

Alternative 4 was developed by comparing eight segments that originated and ended at various locations off of Alternative 2 (**Table A13**). Compared to the corresponding segment from Alternative 2, there are fewer residences in the immediate foreground and foreground (0 to ¼ mile and ¼ to ½ mile) of segments A1, A2, B1, B2, C2, and D compared to the corresponding Alternative 2 segments. The differences are all fewer than 5 residences, except A1 (A1 = 13 and corresponding Alternative 2 A1 = 28). Segment E and the corresponding Alternative 2 segment are the same. Segment C1 has a considerably more residences than the corresponding Alternative 2 segment (C1 = 66 versus corresponding Alternative 2 = 0).

Travel corridor comparison (½ to 1 mile) shows that segments A1, A2, and D have a shorter lineal mileage from the major travel routes in the area than do the corresponding Alternative 2 segments. Segment A1 is approximately 3 miles shorter than its corresponding Alternative 2 segment and the other segments are within 1.5 lineal miles of their corresponding Alternative 2 segments. Segment C1 has a considerable amount more lineal mileage within ½ to 1 mile than the corresponding Alternative 2 segment (C1 = 12.38 miles versus corresponding Alternative 2 C1 = 4.83 miles).

All recreation sites were not compared, but those that were are similar in visual impacts.

In summary, segment A1 has less of a visual impact than the corresponding Alternative 2 segment. The corresponding Alternative 2 segment C1 has considerably smaller visual impact than the segment C1. Transmission line alignments in segments D and E were located in consultation with local residents to reduce visual impacts.

TABLE A13
Comparison of Visual Impacts
Alternative 2, 3, and 4 Segments

Alternative	Segment	Number of Residences (Points)			Recreation – Benton Lake (Miles)	Recreation – State Lands[a] (Miles)	Recreation – Lewis & Clark Trail (Lineal Mileage)			Travel Corridor[b] (Lineal Mileage)
		0 to ¼	¼ to ½	½ to 1	Within One Mile	Miles Crossed	0 to ¼	¼ to ½	½ to 1	½ to 1
2		30	60	91	9.42	0.73	7.94	3.39	6.90	19.61
3		34	71	124	8.90	0.49	7.72	2.30	4.96	21.39
4	A1	10	3	29	--	0.77	0.50	0.52	1.07	4.17
	A2	5	8	4	--	--	--	--	--	2.00
	B1	1	0	2	--	--	--	--	--	--
	B2	2	0	1	--	--	--	--	--	--
	C1[c]	9	57	41	--	--	0.64	0.55	0.89	12.38
	C2[c]	8	16	22	--	--	0.50	0.51	0.79	3.34
	D	4	1	2	--	--	--	--	--	2.50
	E	2	3	3	--	--	0.47	0.50	0.50	1.14
2	A1	9	19	34	--	0.73	0.74	1.15	2.05	7.95
	A2	5	10	13	--	--	--	--	--	3.17
	B1	2	0	1	--	--	--	--	--	--
	B2	2	0	1	--	--	--	--	--	--
	C1	0	0	0	--	--	0.70	1.00	1.38	4.83
	C2	9	20	10	--	--	0.70	1.00	1.38	1.88
	D	4	0	2	--	--	--	--	--	2.45
	E	2	3	4	--	--	--	--	--	1.14

Notes:
a Does not include the conservation easement located north of the Missouri River at Great Falls Substation (Lewis and Clark Greenway Conservation Easement)
b Interstate 15, U.S. Highways 2 and 87, and Montana State Highway 44
c C1 and C2 do not have the same endpoints.
-- not available

APPENDIX B:
TYPES OF H-FRAME STRUCTURES

APPENDIX C:
MATL NOXIOUS WEED CONTROL PLAN

THIS DOCUMENT IS INCLUDED AS APPENDIX N TO THE MATL MFSA APPLICATION

Montana Alberta Tie Ltd.
230-kV Transmission Line Project from Lethbridge, Alberta to Great Falls, Montana

APPENDIX N

Noxious Weed and Invasive Plant Control Plan

DRAFT- June 2006

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1.0 Introduction

This plan was developed to identify noxious weed and invasive plant control practices that would be implemented for the US portion of the Montana Alberta Tie Ltd (MATL) 230-kV transmission line project from the Canadian border to Great Falls, Montana. A noxious weed is a weed arbitrarily defined by law as being especially undesirable, troublesome, or difficult to control. Invasive plants are alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health (USFR 1999). Equipment and supplies necessary for construction and future operation and maintenance (O&M) activities, and the activities themselves, are possible agents for the spread of noxious and invasive plants (Sheley and others, 1999). Construction and maintenance vehicles can potentially carry seeds into the project area, and from one part of the area to another. The risk of establishing a weed and invasive plant community increases with ground disturbing maintenance activities (Sheley and others, 1999).

Executive Order 13112 requires that each federal agency 1) prevent the introduction and spread of invasive species, 2) detect and respond rapidly to control such species, 3) monitor invasive species populations, and 4) provide for restoration of native species and habitat conditions in ecosystems that have been invaded (USFR 1999). The Montana County Weed Control Act (Title 7, Chapter 22 Part 21) provides for weed management at the county level. The law requires counties to develop a long-term management plan for the control of noxious weeds in their county.

Table 1-1 below provides a summary of the categories of noxious weeds identified in the state of Montana's Weed Management Plan along with each weed's reported distribution within the six project area counties; Glacier, Toole, Pondera, Teton, Cascade and Chouteau Counties.

Table 1-1 Designated Noxious Weeds of Montana

Category 1 – Widespread Noxious Weeds*	
Canada Thistle (*Cirsium arvense*)	Reported in All Project Area Counties
Field Bindweed (*Convolvulus arvensis*)	Reported in All Project Area Counties
Leafy Spurge (*Euphorbia esula*)	Reported in All Project Area Counties
Russian Knapweed (*Centaurea repens*)	Reported in All Project Area Counties
Spotted Knapweed (*Centaurea maculosa*)	Reported in All Project Area Counties
Whitetop or Hoary Cress (*Cardaria draba)*	Reported in All Project Area Counties except Glacier County (historically present)
Diffuse Knapweed (*Centaurea diffusa*)	Reported in Teton, Cascade and Chouteau Counties
Dalmatian Toadflax (*Linaria dalmatica*)	Reported in All Project Area Counties
St. Johnswort (*Hypericum perforatum*)	Reported in Glacier, Cascade and

	Chouteau Counties. Historically present in Teton County.
Sulfur (Erect) Cinquefoil (*Potentilla recta*)	Reported in Glacier, Pondera, Cascade and Chouteau Counties. Historically present in Toole County.
Common tansy (*Tanacetum vulgare*)	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Toole and Pondera Counties.
Ox-eye Daisy (*Chrysanthemum leucanthemum* L.)	Reported in Glacier, Cascade and Chouteau Counties. Historically present in Pondera and Teton Counties.
Houndstongue (*Cynoglossum officinale* L.)	Reported in All Project Area Counties
Yellow toadflax (*Linaria vulgaris*)	Reported in All Project Area Counties
Diffuse Knapweed (*Centaurea diffusa*)	Reported in All Project Area Counties
Category 2 – Established New Invaders*	
Dyers Woad (*Isatis tinctoria*)	Historically present in Pondera and Chouteau Counties, but not currently reported.
Purple Loosestrife or Lythrum (*Lythrum salicaria, L virgatum*, and any hybrid crosses thereof).	Reported in Pondera and Cascade Counties. Historically present in Toole County.
Tansy Ragwort (*Senecio jacobea* L)	Not reported in any Project Area County.
Meadow Hawkweed Complex (*Hieracium pratense, H. floribundum, H. piloselloides*)	Historically present in Pondera and Chouteau Counties.
Orange Hawkweed (*Hieracium aurantiacum* L.)	Not reported in any Project Area County.
Tall Buttercup (*Ranunculus acris* L.)	Reported in Glacier County. Historically present in Teton County.
Tamarisk [Saltcedar] (*Tamarix* spp.)	Reported in Cascade and Chouteau Counties. Historically present in Teton County.
Perennial pepperweed (*Lepidium latifolium*)	Reported in Toole, Pondera, Teton, Cascade and Chouteau Counties.
Category 3 – Non-Established New Invaders*	
Yellow Starthistle (*Centaurea solstitialis*)	Not reported in any Project Area County.

Common Crupina (*Crupina vulgaris*)	Not reported in any Project Area County.
Rush Skeletonweed (*Chondrilla juncea*)	Not reported in any Project Area County.
Eurasian watermilfoil (*Myriophyllum spicatum*)	Not reported in any Project Area County.
Yellow flag iris (*Iris pseudacoru)*	Reported in Cascade County.

**As reported in the 2005 update of the Montana Weed Management Plan*

2.0 Plan Purpose

The weed control plan is part of the overall restoration program. The overall goal of the restoration program is to preserve the native plant species, community, and functioning ecosystem within the Project Study Area. The purpose of this weed control plan is to prevent and control the spread of noxious weeds and invasive plants during and following construction of the proposed project. MATL and its contractors will be responsible for carrying out the methods described in this plan. Reasonable alternatives may be substituted or methods employed to the extent agreed upon jointly by MATL and the State Inspector (or DEQ personnel).

The Noxious Weed and Invasive Plant Control Plan will implement preventative measures to keep construction sites within the Project Study Area free of species that are not yet established there but which are known to be pests elsewhere in the region. The Plan will set priorities for the control or elimination of weeds that have already established on the site, according to their actual and potential impacts on native species and communities, particularly on our conservation targets. MATL and its contractors will take action only when careful consideration indicates leaving the weed unchecked will result in more damage than controlling it with available methods. This strategy will be developed in coordination with the BLM, State of Montana and the impacted County Weed Districts (Glacier, Pondera, Teton, Chouteau, and Cascade Counties). The focus of MATL's noxious weed and invasive plant control efforts will be to prevent the spread of new populations resulting from project activities, and to assist landowners in their weed control responsibilities by reducing or eliminating existing infestations in the project area. Without concurrent control of weed infestations by landowners on surrounding lands, weed control efforts in the project area by MATL will likely be unsuccessful.

3.0 Objectives

For the project area, the objectives of noxious weed and invasive plant control are: 1) to acquire information on the occurrence, distribution and abundance of noxious weeds and invasive plants in the project area prior to construction, 2) to reduce or eliminate

existing infestations and prevent the spread of new and existing populations of noxious weeds and invasive plants within the project area to the extent feasible for the life of the project following each construction phase, 3) to ensure any populations of rare plants within the project area are not negatively impacted by control activities, and 4) to coordinate and consult with designated BLM, State of Montana and County weed personnel regarding all noxious weed control activities conducted by MATL to ensure compatibility with existing weed control protocol.

4.0 Weed Control Area

The area for noxious weed and invasive plant control (hereafter referred to as the 'weed control area') includes all lands disturbed by construction activities plus a 30-foot buffer area around disturbances. Newly constructed roadways, where needed, are expected to be about 14 feet wide with varying widths of cut and fill slopes. To buffer all disturbed areas it is estimated that the 'weed control area' will consist of an approximately 100-foot corridor along all roadways and tensioning sites that are used for construction, and all lands within 50 feet of each new transmission line structure. MATL will assume responsibility to control noxious and invasive plants in the weed control area.

5.0 Pre-Construction Surveys

Noxious weed and invasive plant inventories in the project area will be conducted by MATL-designated botanists who are familiar with the taxonomic characteristics and typical habitat preferences of noxious weeds and invasive plants. Prior to construction, surveys will be conducted along existing and proposed new roads to be used for the project, structure locations, pulling and tensioning sites, staging and laydown areas, excavated sites, and other construction sites along the ROW. The Project area will be divided into small survey units (e.g., one or more segments between transmission line structures, including transmission line structure locations) and botanists will record all noxious weed and invasive species present within the survey unit.

Relative abundance of each noxious weed and invasive plant will be recorded for the following three zones (including travelways in and out of the three zones):

- Zone 1: Immediately on the existing or proposed disturbed sites (e.g., roadbeds, structure locations, cut/fill slopes);
- Zone 2: within 30 feet of disturbances, and
- Zone 3: in the general area greater than 30 feet from disturbances.

Ground surveys will be conducted in Zones 1 and 2; Zone 3 will receive a reconnaissance-level survey based on what is visible adjacent to the 30 ft buffer. Relative abundance of noxious and invasive plant species found in surveyed areas will be recorded. The project botanist will identify locations of any rare plant species that could potentially be affected by control activities and identify conditions necessary to avoid adverse impacts to these locations.

Maps illustrating noxious weed and invasive species abundances in survey units will be produced at an appropriate scale to assist with monitoring and control activities. Other ancillary thematic layers will also be plotted on the maps to assist with navigation and planning.

The dates of all pre-construction surveys will be coordinated with designated BLM, State of Montana, and weed boards/coordinators in Glacier, Pondera, Teton, Chouteau, and Cascade Counties. It is MATL's intent to conduct the survey at an appropriate time in the growing season to positively identify targeted noxious weeds and invasive species and to establish baseline conditions for future control activities. It is anticipated that the pre-construction survey will occur in late summer 2006.

6.0 Noxious Weed Management

Weeds and invasive species are spread by a variety of means including humans (e.g., workers, hikers and recreationalists, etc.), vehicles, construction equipment, construction and reclamation materials, livestock, and wildlife. Implementation of preventive measures to control the spread of noxious weeds and invasive plants is the most cost-effective management approach.

7.0 Preventive Measures

The following preventive measures would be implemented to prevent the spread of noxious/invasive plants during construction and future O&M activities:

1. Prior to construction, the construction contractor will be trained on methods for cleaning equipment, identification of problem plant species in the project area, and procedures to follow when an invasive or noxious weed is located. To assist in identification, the contractor will be supplied with a list and pictures of noxious and invasive species that may exist within the project area.
2. Prior to any construction disturbance, all known weed populations will be flagged so that they may be avoided.
3. Prior to entering the project area, vehicles and construction equipment will be cleaned (pressure wash or forced air) of all mud, dirt, and plant parts where there is a potential to import weeds. This will be done to remove weed seed that may be attached to this equipment. Washing will occur at designated sites (i.e., construction yards), that include appropriate containment systems.
4. Equipment, materials, and vehicles will be stored at specified work areas or construction yards. All personal vehicles, sanitary facilities, and staging areas will be confined to a limited number of specified weed-free locations to decrease chances of incidental disturbance and spread of noxious weeds and invasive plants.
5. Disturbed areas will be promptly seeded following completion of construction activities to reduce the potential for the spread and establishment of noxious

weeds and invasive plants. Seeding should occur as soon as possible following construction and during the optimal time period. Landowners will be contacted and asked to, if possible, refrain from grazing or moving cattle through populations of noxious weeds and newly planted areas. Only county/state-approved mixtures of certified "weed-free" seed will be used. All other introduced construction materials used for the Proposed Project, such as straw and fill, shall also be weed-free.

6. To limit new or improved accessibility into the area by OHVs and other motorized vehicles, all new access roads undesired or not required for maintenance would be controlled in accordance with management directives of BLM, State of Montana, and private landowners.

8.0 Control Measures

If pesticides are used in the project area, an integrated pest management plan would be developed to ensure that applications will be conducted consistent with BLM and Department of Interior (DOI) policies.

Assuming the project will begin construction in late 2006 or early 2007, MATL will flag all known noxious/invasive plants (for avoidance) prior to the time of construction (e.g., September 2006) to prevent the spread of existing populations found in the designated weed control area. Following construction, annual spraying will begin, likely during the months of May and June; however the potential for fall treatment does exist for some species. Annual spraying will continue as necessary to control noxious/invasive plants in the weed control area for the life of the Proposed Project.

Using the prior years' survey information, annual spraying will be planned by MATL and coordinated with BLM, the State of Montana, and County weed coordinators/boards to ensure spraying will be conducted at the proper growing period, during favorable environmental conditions, and will use the appropriate chemicals to control targeted species. The chemicals used must be approved for use.

Only EPA-registered pesticides will be used. Pesticide use shall be limited to nonpersistent, immobile pesticides and will be applied in accordance with label and application permit directions. Spraying will be conducted using a qualified contractor as deemed appropriate by MATL and in consultation with designated BLM personnel, State of Montana personnel, and County weed coordinators/boards. The applicator used must possess a Montana State Pesticide Applicators License. Rather than broad application, the intent of applying herbicide will be to treat only designated areas.

It is anticipated that most spraying will be conducted using ATV-mounted spray equipment, supported by one or more four-wheel drive pickups equipped with water tanks. Pickups will carry necessary chemicals, fluid pumps, tools, and water to provide a base station for refilling of ATV spray tanks. Spraying infestations within the weed control area will be conducted by ATV, using hand-held spray guns with 25 to 50 foot hoses attached to spray tanks or by using 8 to 12 foot spray booms. The spray booms

will be utilized for treating larger areas on roadbeds and on gentle to moderately steep terrain. All spraying equipment shall be calibrated to ensure the proper rate of herbicide is applied.

Following annual spraying, a monitoring survey will be conducted to verify locations of noxious weeds and invasive plants in the project vicinity. These monitoring surveys are expected to occur in the late summer/early fall (August-September) and will be conducted using MATL's-designated botanist personnel in the same manner described for the pre-construction surveys.

9.0 Reporting

Beginning with the fall/winter of 2007 (November 2007 to February 2008), MATL will prepare and submit a status report to designated federal, state and county personnel regarding the previous years' weed control activities. The winter 2007 report will detail baseline conditions regarding the occurrence, distribution, and abundance of listed species located in the project area, weed control activities accomplished to date, and expected activities for the following year. Each subsequent years' report will 1) detail the current status of noxious weed and invasive plant occurrence, distribution and abundance, 2) summarize activities conducted in the project area during previous years, and 3) outline projected activities for the following year. This will include timing of surveys, herbicide treatments, amount and types of chemicals applied, and a list of participants and their activities. These reports will continue annually from winter 2007 for the life of the project, or as required by designated federal, state and county personnel to ensure long-term noxious/invasive plan control measures are met in the weed control area.

10.0 References

Montana Department of Agriculture. 2005. Montana Noxious Weed List. Montana Dept. of Agriculture, Helena, Montana. Available at http://agr.state.mt.us/weedpest/noxiousweedslist2.asp.

Sheley, R.L., Manoukian, M., and G. Marks. 1999. "Preventing Noxious Weed Invasion," pages 69-72 in, R.L. Sheley and J.K. Petroff, editors. Biology and Management of Noxious Rangeland Weeds. Oregon State University Press, Corvallis, OR.

USFR (U.S. Federal Register). 1999. "Presidential Document, Executive Order 13112. Invasive Species," Federal Register 64:6183-6186.

APPENDIX D:
DRAFT MATL RECLAMATION AND REVEGETATION PLAN

THIS DOCUMENT IS INCLUDED AS APPENDIX O TO THE MATL MFSA APPLICATION

Montana Alberta Tie Ltd.
230-kV Transmission Line Project from Lethbridge, Alberta to Great Falls, Montana

Appendix O

Revegetation and Reclamation Plan

DRAFT

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1. Overview

As part of its MFSA Application, MATL has prepared a draft Revegetation and Reclamation Plan as Appendix K to the "DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL)" report. The plan is required to specify, at a minimum, seeding mixtures and rates, and procedures to abide by the requirements of ARM 17.20.1902(10). This rule states that following construction work in rangeland areas, the coverage of desirable perennial plant species shall be 30% or more of that of adjacent rangeland of similar slope and topography the year following revegetation, and 90% or more of the coverage of similar adjacent lands within five years. In forested lands, revegetated land other than that in the right-of-way or permanent access roads will be planted with trees so that after five years the stand density of the adjacent forest will be attained at maturity.

This plan also provides the framework to satisfy any identified landowner specifications for their property, as well as any necessary requirements of the General Permit for Storm Water Discharges Associated with Construction Activity, Montana Department of Natural Resources and Conservation requirements for an easement and construction on State lands, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service and state and county requirements for mitigation associated with construction impacts to waters of the US and the state including streams and wetlands.

2. Objectives

The short term objectives of reclamation are to control erosion and sedimentation, thereby minimizing impacts on adjacent lands and waterways. Properly timed and executed construction practices will mitigate short-term impacts. Long term objectives include erosion and sedimentation control, reclamation of topography, soils and vegetation to a condition equal to that existing prior to disturbance, and reclamation of lands to productive uses consistent with that existing prior to disturbance and applicable land management policies. These objectives will be attained by adherence to practices outlined in the DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL) document, as well as practices outlined in this reclamation and revegetation plan to the extent feasible (Appendix K to that document). Reasonable alternatives may be substituted or methods employed to the extent agreed upon jointly by MATL and the State Inspector (or DEQ personnel).

3. Reclamation

Clearing, Grading, and Topsoil Handling: Per the standards identified in the "DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL)" report, soil disturbance and earth moving will be kept to a minimum and will follow typical procedures to minimize impacts and enhance reclamation. In addition, right-of-way

clearing shall be kept to the minimum necessary to meet the requirements of the National Electric Safety Code.

The permanent easement and temporary work space (the construction right-of-way) will be sized to provide space for all construction activities including temporary storage of any graded material and salvaged topsoil. To prevent wind erosion and facilitate reclamation, the roots of existing vegetation will be retained in place to the extent practical.

In any areas where topsoil must be temporarily removed, a minimum of 3 inches and a maximum of 12 inches of topsoil will be salvaged. Topsoil is defined as an upper layer of the soil, composed primarily of a mixture of organic matter and mineral matter; it is alive with microscopic and small macroscopic organisms (McKinney and Schoch 2006). Topsoil will not be mixed or stored with spoil material. In addition, topsoil will not be stripped during excessively wet or inordinately windy conditions.

Following any necessary clearing for work space, these areas will be graded as necessary to create a level work surface for the passage of heavy construction equipment and other vehicles. Any areas graded during construction will be re-graded to reestablish pre-disturbance landforms. Every reasonable effort will be made to complete final grading and installation of permanent erosion control measures as soon as practicable following construction. All disturbed areas (including temporary access roads and other ancillary facilities) will be returned to pre-excavation grades with allowance for settling. If any discontinuity between natural topography and re-graded ground results, MATL will undertake additional grading work to smooth the transition zone. The elevation of the re-graded right-of-way will not be lower than the natural grade.

For disturbed areas where topsoil was removed, redistribution depths will vary between 3 and 12 inches depending upon depth of topsoil stripped. Topsoil will not be mixed with spoil material at any time during soil handling operations and to the extent practical only topsoil will be re-spread on the surface. Topsoil from un-stripped areas will not be utilized to cover adjacent disturbances.

In addition:

- All garbage and debris will be removed from the re-graded areas before topsoil is replaced.
- Any excess rock not buried or blended with the natural terrain will be disposed of at an approved location.
- The length of time that topsoil is stored will be minimized based on the proposed construction schedule. Topsoil redistribution will begin immediately after re-grading (weather permitting).

- Replaced topsoil will be left in a roughened condition to discourage wind and water erosion. Additional erosion control and soil stabilization may be required on steeper slopes, on topsoil easily transported by wind, etc.
- If it is necessary to alleviate compaction, rutting or crusting prior to seeding, the replaced topsoil will be worked with a harrow, disc, spring, tooth, chisel plow or similar implement.
- Fertilization is not recommended since soil will only be stockpiled for a short period of time and fertilizer may enhance weed growth.

In addition, agricultural areas occupied during construction will be ripped, as necessary, in order to remediate compaction. This effort will be sufficient to relieve compaction to its actual depth.

4. Revegetation

In general, revegetation will be conducted on the right-of-way and at other disturbed areas (temporary access roads, staging areas) to restore vegetative cover that is similar to pre-construction condition, or if requested, meet any other reasonable landowner requests once site work is completed. Disturbed areas will be reclaimed by appropriate contouring and replanting with an approved seed mix. All seed mixtures will be certified "weed free". Noxious weeds will be controlled through implementation of a Noxious and Invasive Plant Control Plan (Appendix F to the "DEQ Environmental Specifications for Montana Alberta Tie Ltd (MATL)" report, which will be approved, before construction, by the county weed boards affected by the project bounds.

5. Description of Existing Vegetation

Agriculture dominates land use within the Project Study Area and is interspersed with patches of non-farmland mostly in the form of low to moderately covered grasslands. In upland communities not converted to dryland farming such as rangeland, coulees, and slopes, the dominant grass communities include grama (*Bouteloua* spp.)-needlegrass (*Stipa* spp.) and wheatgrass (*Agropyron* spp.), and wheatgrass-needlegrass (Kuchler 1964). North of Cut Bank toward the Canadian border where the Foothill Grassland and Milk River Pothole Upland ecoregions exist, the natural vegetation is characterized by blue grama grass, wheatgrass, and, to a lesser extent, June grass (*Koelaria* spp.). A variety of shrubs and herbs also occur, but sagebrush (*Artemesia cana* and *Artemesia tridentata*) are most abundant, and on drier sites yellow cactus and prickly pear (*Opuntia* spp.) can be found. Saline areas support alkali grass (*Puccinellia* spp.), wild barley (*Hordeum* spp.), greasewood (*Sarcobatus vermiculatus*), saltwort (*Salicornia rubra*) and Pursh seepweed (*Suaeda calceoliformis*). Land that has been converted from dryland farming into the Conservation Reserve Program (CRP) is dominated by wheatgrass (*Agropyron* spp.), alfalfa (*Medicago* spp.), clover (*Trifolium pratense*) and annual weeds (e.g. *Tragopogon dubius*).

The Marias and Teton rivers support the most significant forested riparian habitats in the Project Study Area. Riparian habitats along the Marias and Teton rivers include oxbow marshes and shrub-dominated terraces, but the defining feature is the cottonwood gallery forest that lines the rivers. Despite the fact that these riparian cottonwood forests have been reduced and fragmented by conversion of the floodplain to irrigated agriculture and pasture, they remain the only significant forested habitat within the Project Study Area. The width of the cottonwood gallery forest varies between 30 and 500 feet.

6. Revegetation Mixtures

Revegetation seed mixtures will be agreed upon by MATL and DEQ personnel prior to any revegetation activities taking place on disturbed areas.

Species Selected: Selection of adapted plant species for revegetation is primarily based on existing species occurrence on adjacent lands, and community compositions. Consideration will also be given to establishment potential, growth characteristics, soil stabilizing qualities, availability of seed, and landowner and agency recommendations. MATL will utilize revegetation mixtures based on inventories and knowledge of vegetative types based on field visits conducted to date, and based on any specific recommendations made by the county weed boards.

Species Composition and Rates: The use of native graminoids will be emphasized throughout much of the project area. If noxious weeds invade revegetated areas, control measures, identified in consultation with the county weed board, would be initiated. If any revegetation is required in riparian areas containing woody plants, MATL will plant native shrubs and trees in these locations.

Final seeding and planting rates and species composition will be determined through consultation with DEQ, county weed board members, and land managers on any public lands crossed. Unless otherwise appropriate, approximately 20 pounds per acre of a mix of grasses and forbs seeds should be planted using the broadcast method. A post-seeding pass with a cultipacker would ensure adequate contact of the seed with the soil.

Reseeding will take place in the first appropriate season (Spring or Fall) after construction and at the landowners' discretion. Seeds are best planted in the spring. Seeds planted in the fall are going to be more susceptible to frost-heave and being eaten by rodents. Weed control is also less effective in the fall. Areas disturbed by the Project that supported native vegetation will be revegetated with native species.

Plant Materials: Typically, plant material dealers providing commercial seed will be encouraged to supply seed of local origin. Seed will be purchased in accordance with pure live seed specifications for seed mixtures, emphasizing the use of weed-free certified seed. All seed will be tested to ensure it is noxious weed-free. Seed

certification/testing tags will be submitted to DEQ or the counties if requested. Seed will be utilized within 12 months of testing. Containerized or bare root stock will be utilized for native shrub or tree plantings and local stock will be utilized if available.

Seeding Methods: Soil will be conditioned to prepare a good seedbed., Seed will be broadcast utilizing manually operated bucket spreaders, mechanical seed spreaders, blowers or hydroseeders. Seed will be mixed frequently in spreader hoppers to discourage settling. Seeded areas will be chained, harrowed or cultipacked to cover the seed and provide better seed/soil contact. On any areas of steeper slopes, broadcast seeded or hydroseeded areas will be dozer tracked perpendicular to the slope to provide for better seed germination. When hydroseeding is used, seed and mulch will be sprayed in one application. On small areas of revegetation or inaccessible sites, seed will be covered via hand raking.

Construction schedules and seasonal conditions will impact revegetation activities. Seeding and planting will occur as soon after seedbed preparation as possible, either in the fall or spring. Spring seeding, if required, will be conducted as early as possible to maximize the benefits of spring soil moisture.

Planting Methods: In disturbed areas where native shrub or trees need to be planted, MATL will typically utilize stock located as close to the project area as possible. Topsoil salvaged from construction disturbance (assuming no noxious weeds are present) will also be utilized to help promote the re-establishment of existing plant communities.

Tree and shrub planting procedures will follow guidelines set forth in US Forest Service Reforestation Handbook (See FSH 2409.26b, Chapter 700).

7. Erosion Control

In accordance with requirements of the General Permit for Storm Water Discharges Associated with Construction Activity, erosion and sediment control measures will be implemented at disturbed areas to minimize soil movement and improve the potential for revegetation and help ensure successful reclamation. Prior to construction, MATL will prepare a Storm Water Pollution Prevention Plan as part of the application for a General Permit in order to assess the potential for storm water runoff in the areas surrounding the disturbed sites, identify sources of pollutants from the disturbed sites and identify best management practices or control measures to minimize or eliminate these pollutants from entering any surface waters. Drawings of typical techniques that MATL proposes to utilize during construction to control erosion and sediment load to streams and wetlands are presented in Attachment A of this plan (forthcoming from SNC-Lavalin).

8. Monitoring

Revegetated areas will be monitored for a period of at least five years to identify success of reestablishing vegetative cover. This includes monitoring and controlling any noxious weed introduction as discussed further in MATL's Noxious and Invasive Plant Control Plan (Appendix F to the "DEQ Environmental Specifications for Montana Alberta Tie Ltd"). Monitoring efforts identified in this plan will be coordinated with efforts set forth in Appendix F.

Per requirements of ARM 17.20.1902(10), the coverage of desirable perennial plant species will be reviewed against the standard that the revegetative cover be 30% or more of that of adjacent rangeland of similar slope and topography the year following, and 90% or more of the coverage of similar adjacent lands within five years. At the end of the five years, the vegetative cover will be surveyed and documented, and if at that time it is determined that additional monitoring and control will be necessary, DEQ and the appropriate county weed control board will be consulted to determine a plan of action.

Specifically, qualified specialists (identified by MATL) will complete quantitative monitoring on an annual basis to compare adjacent, undisturbed vegetation to the revegetated areas. Evaluation factors will include percent of total vegetative cover, percent litter cover, percent bare ground, species diversity, species composition, woody plant survival (if planted in that area), and presence of noxious weeds. Areas with poor regeneration will be evaluated to identify what reclamation techniques could be utilized to address the problem (address soil fertility, soil erosion, etc.)

9. Reporting

Beginning with the fall/winter of 2007 (November 2007 to February 2008), MATL will prepare and submit a status report to designated state personnel regarding the previous years monitoring activities. The winter 2007 report will detail baseline conditions regarding typical vegetative cover located in the project area, reclamation and revegetation activities accomplished to date, and expected activities for the following year. Each subsequent years report will 1) detail the current status of vegetative cover, as compared to adjacent land cover, 2) summarize activities conducted in the project area during previous years, and 3) outline projected activities for the following year. This effort will be coordinated with reporting requirements for Appendix F (Noxious and Invasive Plant Control Plan). These reports will continue annually from winter 2007 as required by designated state personnel to ensure long-term revegetative measures are met.

Literature Cited

McKinney, M.L. and R.M. Schoch. 2006. Environmental Science, Systems and Solutions. Third Edition. Available at http://environment.jbpub.com/mckinney/interactive_glossary_showterm.cfm?term=topsoil%20. Accessed 24 May 2006.

APPENDIX E:
DRAINAGES AND WETLAND AREAS THAT WOULD BE AVOIDED

THESE TABLES WERE PRESENTED IN THE MATL MFSA APPLICATION AS TABLES 4.5-7 AND 4.5-12

APPENDIX E-1 DRAINAGES AND WATER BODIES CROSSED NORTH TO SOUTH BY PREFFERED ALTERNATIVE A MONTANA ALBERTA TIE LTD., LETHBRIDGE, AB – GREAT FALLS, MT	
Water body	**River Miles[1]**
Red River	8.00 miles
Fitzpatrick Coulee	8.97 miles
Old Maids Coulee	4.95, 5.06 and 10.09 miles
Marias River	171.23 miles
Bullhead Creek	9.94 miles
Winginaw Coulee	0.22 miles
Ringwald Coulee	0.37 miles
Schultz Creek	21.87 miles
Dry Fork Marias River	27.59 miles
Spring Creek	4.55 miles
Pondera Coulee	95.85 miles
Railroad Coulee	3.75 miles
South Pondera Coulee	16.86, 17.15 and 17.30 miles
Brady Coulee	3.83 miles
Rocky Coulee	16.15 miles
Teton River	96.04 miles
Hunt Coulee	2.17 miles
Kinley Coulee	6.34 miles
Unnamed Stream	1.36 miles
Timber Coulee	16.58 miles
Unnamed Stream	3.11 miles
Huntley Coulee	25.21 miles

[1] Source: Montana Fish, Wildlife, and Parks. River miles listed are the point locations at which the alternative would cross the particular water body. River miles are published as an aid to people using the river for commerce, recreation and emergency services. As one travels upstream, the numbers increase until the last listed mile of the navigation map. If multiple river miles are listed then the alignment crosses that particular water body multiple times.

APPENDIX E-2
LINEAR MILES OF WETLANDS ALONG THE TRANSMISSION LINE ALTERNATIVES
MONTANA ALBERTA TIE, LTD., LETHBRIDGE, AB – GREAT FALLS, MT

	Preferred Alternative A	**Alternative B**	**Alternative C**	*Western Alt. Segment*	*Eastern Alt. Segment*
Wetland Class	**Length (Miles)**	**Length (Miles)**	**Length (Miles)**	*Length (Miles)*	*Length (Miles)*
L2ABF	0.00	0.00	0.00	*0.00*	*0.00*
L2USA	0.00	0.00	0.00	*0.00*	*0.00*
L2USAd	0.00	0.00	0.00	*0.00*	*0.00*
PABF	0.00	0.01	0.00	*0.00*	*0.00*
PABFh	0.09	0.09	0.09	*0.00*	*0.00*
PABFx	0.00	0.00	0.00	*0.00*	*0.00*
PEMA	0.64	0.14	0.39	*0.03*	*0.11*
PEMAd	0.08	0.02	0.02	*0.00*	*0.00*
PEMAh	0.00	0.00	0.04	*0.00*	*0.00*
PEMB	0.09	0.00	0.03	*0.00*	*0.00*
PEMC	0.18	0.39	0.20	*0.15*	*0.14*
PEMCh	0.00	0.03	0.03	*0.00*	*0.00*
PEMF	0.00	0.02	0.00	*0.00*	*0.00*
PEMFh	0.00	0.02	0.00	*0.00*	*0.00*
PSSA	0.00	0.00	0.06	*0.00*	*0.00*
PUBFx	0.00	0.00	0.05	*0.00*	*0.00*
PUSA	0.02	0.00	0.00	*0.00*	*0.02*
PUSAh	0.00	0.00	0.04	*0.00*	*0.00*
R3UBH	0.00	0.03	0.04	*0.00*	*0.00*
R3USC	0.04	0.04	0.00	*0.00*	*0.00*
Total Wetlands	1.14	0.77	0.99	*0.18*	*0.27*
U	106.49	98.77	118.02	*18.32*	*18.13*
No Data	22.26	24.89	17.48	--	*0.01*
Total Length of Alternative	129.89	124.43	136.49	*18.50*	*18.41*

APPENDIX F:
DRAFT DEQ ENVIRONMENTAL SPECIFICATIONS

Draft DEQ Environmental Specifications

The following specifications have been developed by the DEQ for projects receiving a Certificate of Compliance and would become conditions to the Certificate of Compliance if it is approved.

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DEFINITIONS

ACCESS EASEMENT: Any land area over which the OWNER has received an easement or other permission from a LANDOWNER allowing travel to and from the project. Access easements may or may not include access roads.

ACCESS ROAD: Any travel course which is constructed by substantial recontouring of land and which is intended to permit passage by most four-wheeled vehicles.

BEGINNING OF CONSTRUCTION: Any project-related earthmoving or removal of vegetation (except for clearing of survey lines).

BOND: Performance bond to guarantee successful reclamation and revegetation of the project as allowed under 75-20-302(2),MCA

CERTIFICATE: Certificate of Compliance issued by the Department of Environmental Quality.

CONTRACTOR: Constructors of the Facility (agent of owner)

FWP: Montana Fish, Wildlife and Parks

DNRC: Montana Department of Natural Resources and Conservation

DOT: Montana Department of Transportation

DEQ: Montana Department of Environmental Quality

LANDOWNER: The owner of private property or the managing agency for public lands.

OWNER: The owner(s) of the facility, or the owner's agent.

SENSITIVE AREA: Area which exhibits environmental characteristics that may make it susceptible to impact from construction of a transmission facility. The extent of these areas is defined for each project but may include any of the areas listed in Circular MFSA-2 Sections 3.2(1)(d) and 3.4(1).

SHPO: State Historic Preservation Office

STATE INSPECTOR: DEQ employee or DEQ designee with the responsibility for monitoring the OWNER's and contractor's compliance with terms and conditions of the Certificate of Compliance issued for a project.

INTRODUCTION

The purpose of these specifications is to ensure mitigation of potential environmental impacts during the construction, operation and maintenance of a transmission facility.

For non-exempt facilities, the Montana Major Facility Siting Act supersedes all state and local environmental permit requirements except for those dealing with air and water quality, public health and safety, water appropriations and diversions, and easements across state lands (75-20-103 and 401, MCA). A major purpose of these conditions is to ensure that the intent of the laws which are superseded is met, even though the procedures of applying for and obtaining permits from various state agencies are not. As specified later in this document, the STATE INSPECTOR will have the responsibility for arranging reviews and inspections by other state agencies, which would otherwise have been done through a permit application process.

Appendices A through Q refer to the site-specific concerns and areas that apply for a specific project. These addenda, as needed, will be prepared by DEQ working in consultation with the OWNER prior to the start of construction.

0.0 GENERAL SPECIFICATIONS

0.1. SCOPE

These specifications apply to all lands affected by the project. Where the LANDOWNER requests practices other than those listed in these specifications, the OWNER may authorize such a change provided that the STATE INSPECTOR is notified in writing of the change and that the change would not be in violation of: (1) the intent of any state law which is superseded by the Montana Major Facility Siting Act; (2) the Certificate; (3) any conditions imposed by DEQ; (4) DEQ's finding of minimum adverse impact; or (5) the regulations in ARM 17.20.1901 and 17.20.1902.

0.2. ENVIRONMENTAL PROTECTION

The OWNER shall conduct all operations in a manner to protect the quality of the environment and to reduce impacts to the greatest extent practical.

0.3. CONTRACT DOCUMENTS

These specifications shall be part of or incorporated into the contract documents; therefore, the OWNER and the OWNER'S agents shall be held responsible for adherence to these specifications in performing the work

0.4. BRIEFING OF EMPLOYEES

The OWNER shall ensure that the CONTRACTOR and all field supervisors are provided with a copy of these specifications and informed of which sections are applicable to specific procedures. It is the responsibility of the OWNER, its CONTRACTOR and the CONTRACTOR's Construction Supervisors to ensure that the intent of these measures is met. Supervisors shall inform all employees on the applicable environmental constraints spelled out herein prior to and during construction. Site-specific measures spelled out in the appendices

attached hereto shall be incorporated into the design and construction specifications or other appropriate contract document.

0.5. COMPLIANCE WITH REGULATIONS

All project-related activities of the OWNER shall comply with all applicable local, state, and federal laws, regulations, and requirements.

0.6. LIMITS OF LIABILITY

The OWNER is not responsible for correction of environmental damage or destruction of property caused by negligent acts of DEQ employees during construction monitoring activities.

0.7. DESIGNATION OF SENSITIVE AREAS

DEQ, in its evaluation of the project, has designated certain areas along the right-of-way or access roads as SENSITIVE AREAS. The OWNER shall take all reasonable actions to avoid adverse impacts in these SENSITIVE AREAS and adopt the measures in Appendix A.

0.8. PERFORMANCE BOND

To ensure compliance with these specifications, the OWNER shall submit to the State of Montana or its authorized agent a BOND or BONDS pertaining specifically to the restoration and revegetation of the right-of-way and adjacent land damaged during construction. Post-construction monitoring by DEQ will determine compliance with these specifications and other mitigating measures included herein. At the time cleanup and restoration are complete, and revegetation is progressing satisfactorily, the OWNER shall be released from its obligation for restoration. At the time the OWNER is released, a portion of this BOND or a separate BOND shall be established by the OWNER and submitted to the State of Montana or its authorized agent. This BOND shall be held for five years or until monitoring by DEQ indicates that reclamation, weed control, and road closures have been adequate. The amount and bonding mechanisms for this section shall be specified by DEQ and agreed to by the OWNER under provisions established by 17.20.1902(9) as specified in Appendix B and attached. Proof of bond shall be submitted to DEQ two weeks prior to the start of construction.

0.9. DESIGNATION OF STRUCTURES

Each structure for the project shall be designated by a unique number on plan and profile maps, and a shape file, route, or geodatabase showing line, structure, and access locations submitted to DEQ. References to specific poles or towers in Appendices A through Q shall use these numbers. If this information is not available because the survey is not complete, station numbers or mileposts shall indicate locations along the centerline. Station numbers or mileposts of all angle points shall be designated on plan and profile maps.

0.10. ACCESS

When easements for construction access are obtained for construction personnel, provision will be made by the OWNER to ensure that DEQ personnel or contractors will be allowed access to the right-of-way and to any off-right-of-way access roads used for construction during the term

of the CERTIFICATE. Liability for damage caused by providing such access for the STATE INSPECTOR shall be limited by section 0.6 LIMITS OF LIABILITY.

0.11. DESIGNATION OF STATE INSPECTOR

DEQ shall designate a STATE INSPECTOR or INSPECTORS to monitor the OWNER'S compliance with these specifications and any other project–specific mitigation measures adopted by DEQ as provided in ARM 17.20.1901 through 17.20.1902. The STATE INSPECTOR shall be the OWNER's liaison with the State of Montana on construction, post-construction, and reclamation activities. All communications regarding the project shall be directed to the STATE INSPECTOR. The name of the STATE INSPECTOR can be obtained by contacting the Bureau Chief of the Environmental Management Bureau, Permitting and Compliance Division, Department of Environmental Quality, or the Bureau Chief's successor (see Appendix P).

1.0. PRE-CONSTRUCTION PLANNING AND COORDINATION

1.1. PLANNING

1.1.1. Planning of all stages of construction and maintenance activities is essential to ensure that construction-related impacts will be kept to a minimum. The CONTRACTOR and OWNER shall, to the extent possible, plan the timing of construction, construction and maintenance access and requirements, location of special use sites, and other details before the commencement of construction.

1.1.2. Preferably thirty days, but at least fifteen days before the start of construction, the OWNER shall submit plan and profile map(s) and an electronic equivalent acceptable to the STATE INSPECTOR depicting the location of the centerline and of all construction access roads, maintenance access roads, structures, clearing backlines, and, if known, special use sites. The scale of the map for special use sites shall be 1:24,000 or larger.

1.1.3. If special use sites are not known at the time of submission of the plan and profile, the following information shall be submitted no later than five days prior to the start of construction. The location of special use sites including staging sites, pulling sites, batch plant sites, splicing sites, borrow pits, and storage or other buildings shall be plotted on one of the following and submitted to DEQ: ortho-photomosaics of a scale 1:24,000 or larger, or available USGS 7.5' plan and profile maps of a scale 1:24,000 or larger, or an electronic equivalent acceptable to the STATE INSPECTOR.

1.1.4. Changes or updates to the information submitted in 1.1.2 and 1.1.3 shall be submitted to DEQ as they become available. In no case shall a change be submitted less than five (5) working days prior to its anticipated date of construction. Changes in these locations prior to construction where designated SENSITIVE AREAS are affected must be submitted to DEQ seven (7) working days before construction and approved by the STATE INSPECTOR prior to construction.

1.1.5. Long-term maintenance routes to all points on the line should be planned before construction begins. Where known, new construction access roads intended to be maintained for permanent use shall be differentiated from temporary access roads on the maps required under 1.1.2 above.

1.2. PRE-CONSTRUCTION CONFERENCE

1.2.1. At least one week before commencement of any construction activities, the OWNER shall schedule a pre-construction conference. The STATE INSPECTOR shall be notified of the date and location for this meeting. One of the purposes of this conference shall be to brief the CONTRACTOR and land management agencies regarding the content of these specifications and other DEQ approved mitigating measures, and to make all parties aware of the roles of the STATE INSPECTOR and of the federal inspectors (if any).

1.2.2. The OWNER's representative, the CONTRACTOR's representative, the STATE INSPECTOR, and representatives of affected state and federal agencies who have land management or permit and easement responsibilities shall be invited to attend the pre-construction conference.

1.3. PUBLIC CONTACT

1.3.1. Written notification by the OWNER's field representative or the CONTRACTOR shall be given to local public officials in each affected community prior to the beginning of construction to provide information on the temporary increase in population, when the increase is expected, and where the workers will be stationed. If local officials require further information, the OWNER shall hold meetings to discuss potential temporary changes. Officials contacted shall include the county commissioners, city administrators, and law enforcement officials. It is also suggested that local fire departments, emergency service providers, and a representative of the Chamber of Commerce be contacted.

1.3.2. The OWNER shall negotiate with the LANDOWNER in determining the best location for access easements and the need for gates.

1.3.3. The OWNER shall contact local government officials, or the managing agency, as appropriate, regarding implementation of required traffic safety measures.

1.4. HISTORICAL AND ARCHAEOLOGICAL SURVEY

1.4.1. The OWNER must develop and carry out a plan submitted to the State Historic Preservation Office (SHPO) that includes steps which have been and will be taken to identify, evaluate, and avoid or mitigate damage to cultural resources affected by the project. The plan (Appendix I) shall include: (1) actions taken to identify cultural resources during initial intensive survey work; (2) an evaluation of the significance of the identified sites and likely impacts caused by the project; (3) recommended treatments or measures to avoid or mitigate damage to known cultural sites; (4) steps to be taken in the event other sites are identified after approval of the plan; and (5) provisions for monitoring construction to protect cultural resources. Except for monitoring, all steps of the plan must be carried out prior to the start of construction. The requirements for this plan should not be construed to exempt or alter compliance by the OWNER or managing agency with 36 CFR 800. This plan must be filed with SHPO.

2.0 CONSTRUCTION

2.1. GENERAL

2.1.1. The preservation of the natural landscape contours and environmental features shall be an important consideration in the location of all construction facilities, including roads, storage areas, and buildings. Construction of these facilities shall be planned and conducted so as to minimize destruction, scarring, or defacing of the natural vegetation and landscape. Any necessary earthmoving shall be planned and designed to be as compatible as possible with natural landforms.

2.1.2. Temporary construction sites and staging areas shall be the minimum size necessary to perform the work. Such areas shall be located where most environmentally compatible, considering slope, fragile soils or vegetation, and risk of erosion. After construction, these areas shall be restored as specified in Section 3.0 of these specifications unless the STATE INSPECTOR authorizes a specific exemption in writing.

2.1.3. All work areas shall be maintained in a neat, clean, and sanitary condition at all items. Trash or construction debris (in addition to solid wastes described in section 2.14) shall be regularly removed during the construction, restoration, and reclamation periods.

2.1.4. In areas where mixing of soil horizons would lead to a significant reduction in soil productivity, increased difficulty in establishing permanent vegetation, or an increase in weeds, mixing of soil horizons shall be avoided insofar as possible. This may be done by removing and stockpiling topsoil, where practical, so that it may be spread over subsoil during site restoration. Known areas where stockpiling of topsoil is required are listed in Appendix L. Prior to construction the STATE INSPECTOR may designate other areas.

2.1.5. Vegetation such as trees, plants, shrubs, and grass on or adjacent to the right-of-way which do not interfere with the performance of construction work or operation of the line itself shall be preserved.

2.1.6. The OWNER shall take all necessary actions to avoid adverse impacts to SENSITIVE AREAS listed in Appendix A. The STATE INSPECTOR shall be notified two working days in advance of initial clearing or construction activity in these areas. The OWNER shall mark or flag the clearing backlines and limits of disturbance in certain SENSITIVE AREAS as indicated in Appendix A. All construction activities must be conducted within this marked area.

2.1.7. The OWNER shall either acquire appropriate land rights or provide compensation for damage for the land area that will be disturbed by construction. The width of the area disturbed by construction shall not exceed a reasonable distance from the centerline as necessary to perform the work. For this project, work should be contained within the area specified in Appendix C.

2.1.8. Flow in a stream course may not be permanently diverted. If temporary diversion is necessary, flow will be restored before a major runoff season or the next spawning season, as determined by the STATE INSPECTOR in consultation with the managing agency.

2.2. CONSTRUCTION MONITORING

2.2.1. The STATE INSPECTOR is responsible for implementing the monitoring plan required by ARM 17.20.1902. The plan specifies the type of monitoring data and activities required, and terms and schedules of monitoring data collection, and assigns responsibilities for data collection, inspection reporting, and other monitoring activities. It is attached as Appendix Q.

2.2.2. The STATE INSPECTOR, the OWNER, and the OWNER'S agents will attempt to rely upon a cooperative working relationship to reconcile potential problems relating to construction in SENSITIVE AREAS and compliance with these specifications. When construction activities would cause excessive environmental impacts due to seasonal field conditions or damage to sensitive features, the STATE INSPECTOR will discuss possible mitigating measures or minor construction rescheduling to avoid these impacts with the OWNER. The STATE INSPECTOR will be prepared to provide the OWNER with written documentation of the reasons for the modifications within 24 hours of their imposition.

2.2.3. The STATE INSPECTOR may require mitigating measures or procedures at some sites beyond those listed in Appendix A in order to minimize environmental damage due to unique circumstances that arise during construction, such as unanticipated discovery of a cultural site. The STATE INSPECTOR will follow procedures described in the monitoring plan when such situations arise.

2.2.4. In the event that the STATE INSPECTOR shows reasonable cause that compliance with these specifications is not being achieved, DEQ would take corrective action as described in 75-20-408, MCA.

2.3. TIMING OF CONSTRUCTION

2.3.1. Construction and motorized travel may be restricted or prohibited at certain times of the year in certain areas. Exemptions to these timing restrictions may be granted by DEQ in writing if the OWNER can clearly demonstrate that no environmental impacts will occur as a result. These areas, listed in Appendix D, include areas deemed as SENSITIVE AREAS.

2.3.2. In order to prevent rutting and excessive damage to vegetation, construction will not take place during periods of high soil moisture when construction vehicles will cause severe rutting.

2.4. PUBLIC SAFETY

2.4.1. All construction activities shall be done in compliance with existing health and safety laws.

2.4.2. Requirements for aeronautical hazard marking shall be determined by the OWNER in consultation with the Montana Aeronautical Division, the FAA, and DEQ. These requirements are listed in Appendix E. Where required, aeronautical hazard markings shall be installed at the time the wires are strung, according to the specifications listed in Appendix E.

2.4.3. Noise levels shall not exceed established DEQ standards as a result of operation of the facility and associated facilities. For electric transmission facilities, the average annual noise levels, as expressed by an A-weighted day-night scale (Ldn) will not exceed 50 decibels at the

edge of the right-of-way in residential and subdivided areas unless the affected LANDOWNER waives this condition.

2.4.4. The facility shall be designed, constructed, and operated to adhere to the National Electric Safety Code regarding transmission lines.

2.4.5. The electric field at the edge of the right-of-way will not exceed 1 kilovolt per meter measured 1 meter above the ground in residential or subdivided areas unless the affected LANDOWNER waives this condition, and the electric field at road crossings under the facility will not exceed 7 kilovolts per meter measured 1 meter above the ground.

2.5. PROTECTION OF PROPERTY

2.5.1. Construction operations shall not take place over or upon the right-of-way of any railroad, public road, public trail, or other public property until negotiations and/or necessary approvals have been completed with the managing agency. Roads and trails will be protected and kept open for public use. Where it is necessary to cross a trail with access roads, the trail corridor will be restored. Adequate signing and/or blazes will be established so the user can find the route. All roads and trails designated by government agencies as needed for fire protection or other purposes shall be kept free of logs, brush, and debris resulting from operations under this agreement. Any such road or trail damaged by project construction or maintenance shall be promptly restored to its original condition.

2.5.2. Reasonable precautions shall be taken to protect, in place, all public land monuments and private property corners or boundary markers. If any such land markers or monuments are destroyed, the marker shall be reestablished and referenced in accordance with the procedures outlined in the "Manual of Instruction for the Survey of the Public Land of the United States" or, in the case of private property, the specifications of the county engineer. Reestablishment of survey markers will be at the expense of the OWNER

2.5.3. Construction shall be conducted so as to prevent any damage to existing real property including but not limited to transmission lines, distribution lines, telephone lines, railroads, ditches, and public roads crossed. If such property is damaged by operations under this agreement, the OWNER shall repair such damage immediately to a reasonably satisfactory condition in consultation with the property owner.

2.5.4. In areas with livestock, the OWNER shall make a reasonable effort to comply with the reasonable requests of LANDOWNERs regarding measures to control livestock. Unless requested by a LANDOWNER, care shall be taken to ensure that all gates are closed after entry or exit. The LANDOWNER shall be compensated for any losses to personal property due to construction or maintenance activities. Gates shall be inspected and repaired when necessary during construction and missing padlocks shall be replaced. The OWNER shall ensure that gates are not left open at night or during periods of no construction activity unless the LANDOWNER makes other requests. Any fencing or gates cut, removed, damaged, or destroyed by the OWNER shall immediately be replaced with new materials. Fences installed shall be of the same height and general type as a nearby fence on the same property, and shall be stretched tight with a fence stretcher before stapling or securing to the fence post. Temporary gates shall be of sufficiently high quality to withstand repeated opening and closing during construction, to the satisfaction of the LANDOWNER.

2.5.5. The CONTRACTOR must notify the OWNER, the STATE INSPECTOR, and, if possible, the affected LANDOWNER within two working days of damage to land, crops, property, or irrigation facilities, contamination or degradation of water, or livestock injury caused by the OWNER's construction activities, and the OWNER shall reasonably restore any damaged resource or property or provide reasonable compensation to the affected party.

2.5.6. Pole holes and anchor holes must be covered or fenced in any fields, pastures, or ranges being used for livestock grazing or where a LANDOWNER's requests can be reasonably accommodated.

2.5.7. When requested by the LANDOWNER, all fences crossed by permanent access roads shall be provided with a gate. All fences to be crossed by access roads shall be braced before the fence is cut. Fences not to be gated should be restrung temporarily during construction and restrung permanently within 30 days following construction, subject to the reasonable desires of the LANDOWNER.

2.5.8. Where new access roads cross fence lines, the OWNER shall make reasonable effort to accommodate the LANDOWNER's wishes on gate location and width.

2.5.9. Any breaching of natural barriers to livestock movement by construction activities will require fencing sufficient to control livestock.

2.6. TRAFFIC CONTROL

2.6.1. At least 30 days before any construction within or over any state or federal highway right-of-way or paved secondary highway maintained by DOT, the OWNER will notify the appropriate DOT field office to review the proposed occupancy and to obtain appropriate permits and authorizations. The OWNER must supply DEQ with documentation that this consultation has occurred. This documentation should include any measures recommended by DOT and to what extent the OWNER has agreed to comply with these measures. In the event that recommendations or regulations were not followed, a statement as to why the OWNER chose not to follow them should be included.

2.6.2. In areas where project construction creates a hazard, traffic will be controlled according to the applicable DOT regulations. Safety signs advising motorists of construction equipment shall be placed on major state highways, as recommended by DOT. The installation of proper road signing will be the responsibility of the OWNER.

2.6.3. The managing agency shall be notified, as soon as practicable, when it is necessary to close public roads to public travel for short periods to provide safety during construction.

2.6.4. Construction vehicles and equipment will be operated at speeds safe for existing road and traffic conditions.

2.6.5. Traffic delays will be restricted on primary access routes, as determined by DOT or the managing agency.

2.6.6. Access for fire and emergency vehicles will be provided for at all times.

2.6.7. Public travel through and use of active construction areas shall be limited at the discretion of the managing agency.

2.7. ACCESS ROADS AND VEHICLE MOVEMENT

2.7.1. Construction of new roads shall be the minimum reasonably required to construct and maintain the facility. State, county, and other existing roads shall be used for construction access wherever possible. Access roads intended to be permanent should be initially designed as such. The location of access roads and towers shall be established in consultation with affected LANDOWNERs, and LANDOWNER concerns shall be accommodated where reasonably possible and not in contradiction to these specifications or other DEQ conditions.

2.7.2. All new roads, both temporary and permanent, shall be constructed with the minimum possible clearing and soil disturbance to minimize erosion, as specified in Section 2.11 of these specifications.

2.7.3. Where practical, all roads shall be initially designed to accommodate one-way travel of the largest piece of equipment that will be required to use them; road width shall be no wider than necessary.

2.7.4. Roads shall be located in the right-of-way insofar as possible. Travel outside the right-of-way to enable traffic to avoid cables and conductors during conductor-stringing shall be kept to the minimum possible. Road crossings of the right-of-way should be near support structures.

2.7.5. Where practical, temporary roads shall be constructed on the most level land available. Where temporary roads cross flat land they shall not be graded or bladed unless necessary, but will be flagged or otherwise marked to show their location and to prevent travel off the roadway.

2.7.6. In order to minimize soil disturbance and erosion potential, no cutting and filling for access road construction shall be allowed in areas of up to 5 percent sideslope. In areas of over 5 percent sideslope, road building that may be required shall conform to a 4 percent outslope. The roads shall be constructed to prevent channeling of runoff, and shoulders or berms that would channel runoff shall be avoided.

2.7.7. The OWNER will maintain all permanent access roads, including drainage facilities, which are constructed for use during the period of construction. In the event that a road would be left in place, the OWNER and LANDOWNER may enter into agreements regarding maintenance for erosion control following construction.

2.7.8. Any damage to existing private roads, including rutting, resulting from project construction or maintenance shall be repaired and restored to a condition as good or better than original as soon as possible. Repair and restoration of roads should be accomplished during and following construction as necessary to reduce erosion.

2.7.9. All permanent access road surfaces, including those under construction, will be prepared with the necessary erosion control practices as determined by the STATE INSPECTOR or the managing agency prior to the onset of winter.

2.7.10. Any necessary snow removal shall be done in a manner to preserve and protect roads, signs, and culverts, to ensure safe and efficient transportation, and to prevent excessive erosion damage to roads, streams, and adjacent land.

2.7.11. At the conclusion of line construction, final maintenance will be performed on all existing private roads used for construction access by the CONTRACTOR. These roads will be returned to a condition as good or better than when construction began.

2.7.12. At least 30 days prior to construction of a new access road approach intersecting a state or federal highway, or of any structure encroaching upon a highway right-of-way, the OWNER shall submit to DOT a plan and profile map showing the location of the proposed construction. At least five days prior to construction, the OWNER shall provide the STATE INSPECTOR written documentation of this consultation and actions to be taken by the OWNER as provided in 2.6.1.

2.8. EQUIPMENT OPERATION

2.8.1. During construction, unauthorized cross-country travel and the development of roads other than those approved shall be prohibited. The OWNER shall be liable for any damage, destruction, or disruption of private property and land caused by his construction personnel and equipment as a result of unauthorized cross-country travel and/or road development.

2.8.2. To prevent excessive soil damage in areas where a graded roadway has not been constructed, the limits and locations of access for construction equipment and vehicles shall be clearly marked or specified at each new site before any equipment is moved to the site. Construction foremen and personnel should be well versed in recognizing these markers and shall understand the restriction on equipment movement that is involved.

2.8.3. Dust control measures shall be implemented on access roads where required by the managing agency or where dust would pose a nuisance to residents. Construction activities and travel shall be conducted to minimize dust. Water, straw, wood chips, dust palliative, gravel, combinations of these, or similar control measures may be used. Oil or similar petroleum-derivatives shall not be used.

2.8.4. Work crew foremen shall be qualified and experienced in the type of work being accomplished by the crew they are supervising. Earthmoving equipment shall be operated only by qualified, experienced personnel. Correction of environmental damage resulting from operation of equipment will be the responsibility of the OWNER. Repair of damage to a condition reasonably satisfactory to the LANDOWNER, managing agency, or if necessary, DEQ, is required.

2.8.5. Sock lines will be strung using methods that minimize disturbance of soils and vegetation.

2.8.6. Following construction in areas designated by the local weed control board or STATE INSPECTOR as a noxious weed area the CONTRACTOR shall thoroughly clean all vehicles and equipment to remove weed parts and seeds immediately prior to leaving the area.

2.9. RIGHT-OF-WAY CLEARING AND SITE PREPARATION

2.9.1. The STATE INSPECTOR shall be notified at least ten days prior to any timber clearing. The STATE INSPECTOR shall be responsible for notifying the DNRC Forestry Division.

2.9.2. During clearing of survey lines or the right-of-way, shrubs shall be preserved to the greatest extent possible. Shrub removal shall be limited to crushing where necessary. Plants may be cut off at ground level, leaving roots undisturbed so that they may re-sprout.

2.9.3. Right-of-way clearing shall be kept to the minimum necessary to meet the requirements of the National Electric Safety Code. Trees to be saved within the clearing backlines and danger trees located outside the clearing backlines shall be marked. Clearing backlines in SENSITIVE AREAS will be indicated on plan and profile maps. All snags and old growth trees that do not endanger the line or maintenance equipment shall be preserved. In designated SENSITIVE AREAS, the STATE INSPECTOR shall approve clearing boundaries prior to clearing.

2.9.4. In no case should the entire nominal width of the right-of-way be cleared of trees up to the edge, unless approved by the STATE INSPECTOR and the LANDOWNER. Clearing should instead produce a "feathered edge" right-of-way configuration, where only specified hazard trees and those that interfere with construction or conductor clearance are removed. In areas where there is potential for long, tunnel views of transmission lines or access roads as identified in Appendix A, care shall be taken to screen the lines from view. For areas identified in Appendix A, a separating screen of vegetation shall be retained where the right-of-way parallels or crosses highways and rivers.

2.9.5. During construction, care will be taken to avoid damage to small trees and shrubs on the right-of-way that do not interfere with the clearing requirements under 2.9.3. and would not grow to create a hazard over a ten-year period.

2.9.6. Soil disturbance and earth moving will be kept to a minimum.

2.9.7. The OWNER shall be held liable for any unauthorized cutting, injury or destruction to timber whether such timber is on or off the right-of-way.

2.9.8. Unless otherwise requested by the LANDOWNER or managing agency, felling shall be directional in order to minimize damage to remaining trees. Maximum stump height shall be no more than 12 inches on the uphill side or 1/3 the tree diameter whichever is greater. Trees will not be pushed or pulled over. Stumps will not be removed unless they conflict with a structure, anchor, or roadway.

2.9.9. Special logging, clearing, or excavation techniques may be required in certain highly sensitive or fragile areas, as listed in Appendix A.

2.9.10. Crane landings shall be constructed on level ground unless extreme conditions (such as slope, soft, or marshy ground) make other construction necessary. In areas where more than one crane landing per tower site would be built, the STATE INSPECTOR will be notified at least 5 days prior to the beginning of construction at those sites.

2.9.11. No motorized travel on, scarification of, or displacement of talus slopes shall be allowed except where approved by the STATE INSPECTOR and LANDOWNER.

2.9.12. To avoid unnecessary ground disturbance, grounding wires or counterpoise should be placed or buried in disturbed areas whenever possible.

2.9.13. Slash resulting from project clearing that may be washed out by high water the following spring shall be removed and piled outside the floodplain before runoff. Instream slash resulting from project clearing must be removed within 24 hours.

2.9.14. Streamside trees will be felled away from streams rather than into or across streams.

2.10. GROUNDING

Grounding of fences, buildings, and other structures on and adjacent to the right-of-way shall be done according to the specifications of the National Electric Safety Code and any other specifications listed in Appendix G.

2.11. EROSION AND SEDIMENT CONTROL

2.11.1. Clearing and grubbing for roads and rights-of-way and excavations for stream crossings shall be carefully controlled to minimize silt or other water pollution downstream from the rights-of-way. At a minimum, erosion control measures described in the OWNER's Storm Water Control Plan shall be implemented. Sediment retention basins will be installed as required by the STATE INSPECTOR or managing agency.

2.11.2. Roads shall cross drainage bottoms at sharp or nearly right angles and level with the stream bed whenever possible. Temporary bridges, fords, culverts, or other structures will be installed to avoid stream bank damage.

2.11.3. Under no circumstances shall stream bed materials be removed for use as backfill, embankments, road surfacing, or for other construction purposes.

2.11.4. No excavations shall be allowed on any river or perennial stream channels or floodways at locations likely to cause detrimental erosion or offer a new channel to the river or stream at times of flooding.

2.11.5. Installation of culverts, bridges, or other structures in perennial streams along with clearing on stream beds and banks will be done as specified by the STATE INSPECTOR following on-site inspections with DEQ, FWP, and local conservation districts. All culverts shall be installed with the culvert inlet and outlet at natural stream grade or ground level.

2.11.6. Construction of access roads, bridges, fill slopes, culverts, or impoundments, or channel changes within the high-water mark of any perennial stream, lake, or pond, requires consultation with FWP and the local conservation district and application of applicable water quality standards. Within 15 days prior to the start of construction, the OWNER shall submit written documentation that consultation has occurred. Included in this documentation should be the recommendation of the agencies consulted and the actions that OWNER expects to take to completely implement them.

2.11.7. No blasting shall be allowed in streams. Blasting may be allowed near streams if precautions are taken to protect the stream from debris and from entry of nitrates or other contaminants into the stream.

2.11.8. The OWNER shall maintain private roads while using them. All ruts made by machinery shall be filled or graded to prevent channeling. In addition, the OWNER must take measures to prevent the occurrence of erosion caused by wind or water during and after use of these roads. Some erosion-preventive measures include but are not limited to, installing or using cross-logs, drain ditches, water bars, and wind erosion inhibitors such as water, straw, gravel, or combinations of these. Erosion control shall be accomplished as described in the Montana Pollution Discharge Elimination System (MPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

2.11.9. The OWNER shall prevent material from being deposited in any watercourse or stream channel. Where necessary, measures such as hauling of fill material, construction of temporary barriers, or other approved methods shall be used to keep excavated materials and other extraneous materials out of watercourses. Any such materials entering watercourses shall be removed immediately.

2.11.10. The OWNER shall be responsible for the stability of all embankments created during construction. Embankments and backfills shall contain no stream sediments, frozen material, large roots, sod, or other materials that may reduce their stability.

2.11.11. Culverts, arch bridges, or other stream crossing structures shall be installed at all permanent crossings of flowing or dry watercourses where fill is likely to wash out during the life of the road. Culvert or bridge installation is prohibited in areas of important fish spawning beds identified by FWP and during specified fish spawning seasons on less sensitive streams or rivers. All culverts shall be large enough to handle approximately 15-year floods. Culvert size shall be determined by standard procedures taking into account the variations in vegetation and climatic zones in Montana, the amount of fill, and the drainage area above the crossing, and shall be approved as specified in 2.11.6. All culverts shall be installed at the time of road construction and maintained for the life of the project. The areas where stream-crossing measures must be taken are listed in Appendix H.

2.11.12. No fill material other than that necessary for road construction shall be piled within the high water zone of streams where floods can transport it directly into the stream. Excess floatable debris shall be removed from areas immediately above crossings to prevent obstruction of culverts or bridges during periods of high water.

2.11.13. No skidding of logs or driving of vehicles across a perennial watercourse shall be allowed, except via authorized construction roads.

2.11.14. No perennial watercourses shall be permanently blocked or diverted.

2.11.15. Skidding with tractors shall not be permitted within 100 feet of streams containing flowing water except in places designated in advance, and in no event shall skid roads be located on these stream courses. Skid trails shall be located high enough out of draws, swales, and valley bottoms to permit diversion of runoff water to natural undisturbed forest ground cover.

2.11.16. Construction methods shall prevent accidental spillage of solid matter, contaminants, debris, petroleum products, and other objectionable pollutants and wastes into watercourses, lakes, and underground water sources. Secondary containment catchment basins capable of

containing the maximum accidental spill shall be installed at areas where fuel, chemicals or oil are stored. Any accidental spills of such materials shall be cleaned up immediately.

2.11.17. To reduce the amount of sediment entering streams, a strip of undisturbed vegetation will be provided between areas of disturbance (road construction or tower construction) and stream courses, and around first order or larger streams that have a well-defined stream course or aquatic or riparian vegetation, unless otherwise required by the LANDOWNER. Buffer strip width is measured from the high water line of a channel and will be determined by the STATE INSPECTOR and managing agency. When braided streams with more than one discernible channel (ephemeral or permanent) are encountered, the high water line of the outermost channel shall be used. In the event that vegetation cannot be left undisturbed, structural sediment containment, approved by the STATE INSPECTOR, must be substituted before soil-disturbing activity commences.

2.11.18. When no longer needed, all temporary structures or fill installed to aid stream crossing shall be removed and the course of the stream reestablished to prevent future erosion.

2.11.19. All temporary dams built on the right-of-way shall be removed after line construction unless otherwise approved by the STATE INSPECTOR. Dams allowed to remain shall be upgraded to permanent structures and shall be provided with spillways or culverts, a continuous sod cover on their tops, and downstream slopes meeting dam safety standards. Spillways may be protected against erosion with riprap or equivalent means.

2.11.20. Damage resulting from erosion or other causes shall be repaired after completion of grading and before revegetation is begun.

2.11.21. Point discharge of water will be dispersed in a manner to avoid erosion or sedimentation of streams as required in DEQ permits.

2.11.22. Riprap or other erosion control activities will be planned based on possible downstream consequences of activity, and installed during the low flow season if possible.

2.11.23. Water used in embankment material processing, aggregate processing, concrete curing, foundation and concrete lift cleanup, and other wastewater processes shall not be discharged into surface waters without a valid discharge permit from DEQ.

2.12. ARCHAEOLOGICAL, HISTORICAL AND PALEONTOLOGICAL RESOURCES

2.12.1. All construction activities shall be conducted so as to prevent damage to significant archaeological, historical, or paleontological resources, in accordance with the requirements of 1.4.1 and Appendix I.

2.12.2. Any relics, artifacts, fossils or other items of historical, paleontological, or archaeological value shall be preserved in a manner acceptable to both the LANDOWNER and the State Historic Preservation Officer. If any such items are discovered during construction, SHPO shall be notified immediately. Work that could disturb the materials or surrounding area must cease until the site can be properly evaluated by a qualified archaeologist (either employed by the OWNER, managing agency or representing SHPO) and recommendations made by that person based on the Historic Preservation Plan outlined in Appendix I (but in no case more than 10 days). For significant sites, the OWNER must follow recommendations of SHPO.

2.12.3. The OWNER shall conform to treatments recommended for cultural resources by either SHPO or the Advisory Council on Historic Preservation (ACHP).

2.13. PREVENTION AND CONTROL OF FIRES

2.13.1. Burning, fire prevention, and fire control shall comply with the burning plan and fire plan in Appendix J. These plans shall meet the requirements of the managing agency and/or the fire control agencies having jurisdiction. The STATE INSPECTOR shall be invited to attend all meetings with these agencies to discuss or prepare these plans. The STATE INSPECTOR, in turn, shall notify DNRC of all such meetings.

2.13.2. The OWNER shall direct the CONTRACTOR to comply with regulations of any county, town, state or governing municipality having jurisdiction regarding fire laws and regulations.

2.13.3. Blasting caps, powder, and other explosives shall be stored only in approved areas and containers and always separate from each other.

2.13.4. The OWNER shall direct the CONTRACTOR to properly store and handle combustible material that could create objectionable smoke, odors, or fumes. The OWNER shall direct the CONTRACTOR not to burn refuse such as trash, rags, tires, plastics, or other debris, except as permitted by the county, town, state, or governing municipality having jurisdiction.

2.14. WASTE DISPOSAL

2.14.1. The OWNER shall direct the CONTRACTOR to use licensed solid waste disposal sites. Inert materials (Group III wastes) may be disposed of at licensed Class III landfill sites; mixed refuse (Group II wastes) must be disposed of at licensed Class II landfill sites.

2.14.2. Emptied pesticide containers or other chemical containers must be triple rinsed to render them acceptable for disposal in Class II landfills or for scrap recycling pursuant to ARM 17.54.201 for treatment or disposal. Pesticide residue and pesticide containers shall be disposed of in accordance with ARM 17.30.637.

2.14.3. All waste materials constituting a hazardous waste defined in ARM 16.44.303, and wastes containing any concentration of polychlorinated biphenyls must be transported to an approved designated hazardous waste management facility (as defined in ARM 17.53.201) for treatment or disposal.

2.14.4. All used oil shall be hauled away and recycled or disposed of in a licensed Class II landfill authorized to accept liquid wastes or in accordance with 2.14.2 and 2.14.3 above. There shall be no intentional release of crankcase oil or other toxic substances into streams or soil. In the event of an accidental spill into a waterway, the substances will be cleaned up and the STATE INSPECTOR will be contacted immediately. Any spill of refined petroleum products greater than 25 gallons must be reported to the State at Disaster and Emergency Services at 406-841-03911.

2.14.5. Sewage shall not be discharged into streams or streambeds. The OWNER shall direct the CONTRACTOR to provide refuse containers and sanitary chemical toilets, convenient to all principal points of operation. These facilities shall comply with applicable federal, state, and

local health laws and regulations. A septic tank pump licensed by the State shall service these facilities.

2.14.6. In order to reduce fire hazard, small trees and brush cut during construction should be chipped, burned, and/or scattered. Slash 3 inches in diameter or greater may be scattered in quantities of up to 15 tons/acre unless otherwise requested by the LANDOWNER. Tops, limbs and brush less than 3 inches in diameter and 3 feet in length may be left in quantities less than 3 tons per acre except on cropland and residential land or where otherwise specified by the LANDOWNER. In certain cases the STATE INSPECTOR will authorize chipping and scattering of tops, limbs and brush in excess of 3 tons per acre as an erosion control measure. Merchantable timber should be decked and removed at the direction of the LANDOWNER or managing agency

2.14.7. Refuse burning shall require the prior approval of the LANDOWNER and a Montana Open Burning Permit must be obtained from DEQ. Any burning of wastes shall comply with section 2.13 of these specifications.

2.15. SPECIAL MEASURES

2.15.1. Poles with a low reflectivity constant should be used to reduce potential for visual contrast.

2.15.2. At river crossings, strategic placement of structures should be done both as a means to screen views of the transmission line and right-of-way and to minimize the need for vegetative clearing. Crossings of rivers should be designed to avoid diagonal crossings.

3.0 POST-CONSTRUCTION CLEANUP AND RECLAMATION

3.1. CLEANUP

3.1.1. All litter resulting from construction is to be removed from the right-of-way and along access roads leading to the right-of-way. Such litter shall be legally disposed of as soon as possible, but in no case later than 60 days following completion of wire clipping. If requested by the LANDOWNER, the OWNER shall provide for removal of any additional construction-related debris discovered after this initial cleanup.

3.1.2. Insofar as practical, all signs of temporary construction facilities such as haul roads, work areas, buildings, foundations or temporary structures, soil stockpiles, excess or waste materials, or any other vestiges of construction shall be removed and the areas restored to as natural a condition as practical, in consultation with the LANDOWNER.

3.2. RESTORATION, RECLAMATION, AND REVEGETATION

3.2.1 Restoration, reclamation, and revegetation of the right-of-way, access roads, crane pads, splicing or stringing sites, borrow sites, gravel fill, stone, or aggregate excavation, or any other disturbance shall be in accordance with the reclamation and revegetation plan (Appendix K). The OWNER may choose to develop this plan in consultation with appropriate land management agencies as part of easement negotiations. In this case, the OWNER shall provide written documentation of consultation with those agencies and a copy of the agreed-to plan.

This plan and any conditions to the Certificate approved by DEQ shall be attached as Appendix K.

3.2.2. Scarring or damage to any landscape feature listed in Appendix A shall be restored as nearly as practical to its original condition. Bare areas created by construction activities will be reseeded in compliance with Appendices K and L to prevent soil erosion.

3.2.3. After construction is complete, and in cooperation with the LANDOWNER, temporary roads shall be closed.

3.2.4. In agricultural areas where soil has been compacted by movement of construction equipment and unless otherwise specified by the LANDOWNER, the OWNER shall direct the CONTRACTOR to rip the soil deep enough to restore productivity, or if complete restoration is not possible, the OWNER shall compensate the LANDOWNER for lost productivity.

3.2.5. Earth next to access roads that cross streams shall be replaced at slopes less than the normal angle of repose for the soil type involved.

3.2.6. All drainage channels shall be restored to a gradient and width that will prevent accelerated gully erosion.

3.2.6. Drive-through dips, open-top box culverts, waterbars, or cross drains shall be added to roads at the proper spacing and angle as necessary to prevent erosion.

3.2.7. Interrupted drainage systems shall be restored.

3.2.8. Sidecasting of waste materials may be allowed on slopes over 40 percent after approval by the LANDOWNER, however, this will not be allowed within the buffer strip established for stream courses, in areas of high or extreme soil instability, or in other SENSITIVE AREAS identified in Appendix A. Surplus materials shall be hauled to LANDOWNER-approved sites in such areas.

3.2.9. Seeding prescriptions to be used in revegetation, requirements for hydroseeding, fertilizing, and mulching, as jointly determined by representatives of the OWNER, DEQ, and other involved state and federal agencies, are specified in Appendix L.

3.2.10. Piling and windrowing of material for burning shall use methods that will prevent significant amounts of soil from being included in the material to be burned and minimize destruction of ground cover. Non-mechanized methods are recommended if necessary to minimize soil erosion and vegetation disturbance. Piles shall be located so as to minimize danger to timber and damage to ground cover when burned.

3.2.11. During restoration in areas where topsoil has been stockpiled, the site will be graded to near natural contours and the topsoil will be replaced on the surface.

3.2.12. Excavated material not suitable or required for backfill shall be evenly filled back onto the cleared area prior to spreading any stockpiled soil. Large rocks and boulders uncovered during excavation and not buried in the backfill will be disposed of as approved by the STATE INSPECTOR and/or LANDOWNER.

3.2.13. Application rates and timing of seeds and fertilizer, and purity and germination rates of seed mixtures, shall be as determined in consultation with DEQ. Reseeding shall be done at the first appropriate opportunity after construction ends.

3.2.14. Where appropriate, hydro seeding, drilling, or other appropriate methods shall be used to aid revegetation. Mulching with straw, wood chips, or other means shall be used where necessary. Areas requiring such treatment are listed in Appendix L.

3.2.15. All temporary roads shall be obliterated and reclaimed (with the concurrence of the LANDOWNER), as specified in Appendix M. All temporary roadways shall be graded and scarified as specified to permit the growth of vegetation and to discourage traffic. Permanent unsurfaced roadbeds not open to public use will be revegetated as soon after use as possible unless specified otherwise by the LANDOWNER.

3.3. MONITORING

3.3.1. Upon notice by the OWNER, the STATE INSPECTOR will schedule initial post-construction field inspections following cleanup and road closure. Follow-up visits will be scheduled as required to monitor the effectiveness of erosion controls, reseeding measures, and the right-of-way management plan (Appendix N). The STATE INSPECTOR will contact the LANDOWNER for post-construction access and to determine LANDOWNER satisfaction with the OWNER's restoration measures.

3.3.2. The STATE INSPECTOR shall document observations for inclusion in monitoring reports regarding bond release or the success of mitigating measures required by DEQ.

3.3.2. Failure of the OWNER to adequately reclaim all disturbed areas in accordance with section 3.2 and ARM 17.20.1902(10) shall be cause for forfeiture of the reclamation BOND(s) or penalties described in Section 0.3. Success of revegetation shall be based on criteria specified in ARM 17.20.1902(10). Failure of the OWNER to achieve adequate revegetation of disturbed areas may be cause for forfeiture of the revegetation BOND(s) or penalties described in Section 0.3.

4.0. OPERATION AND MAINTENANCE

4.1. RIGHT-OF-WAY MANAGEMENT AND ROAD MAINTENANCE

4.1.1. Maintenance of the right-of-way and permanent access roads shall be as specified in the right-of-way management plan (Appendix N). This plan shall provide for the protection of SENSITIVE AREAS identified prior to and during construction as well as control of erosion on permanent access roads.

4.1.2. Vegetation that has been saved through the construction process and which does not pose a hazard or potential hazard to the transmission line, particularly that of value to fish and wildlife as specified in Appendix A, shall be allowed to grow on the right-of-way.

4.1.3. Vegetative cover adjacent to the transmission line in areas other than cropland shall be maintained in cooperation with the LANDOWNER.

4.1.4. Grass cover, water bars, cross drains, the proper slope, and other agreed to measures shall be maintained on permanent access roads and service roads in order to prevent soil erosion.

4.2. MAINTENANCE INSPECTIONS

4.2.1. The OWNER shall have responsibility to correct soil erosion, noxious weed, or revegetation problems on the right-of-way or access roads as they become known. Appropriate corrective action will be taken where necessary. The OWNER, through agreement with the LANDOWNER or managing agency, may provide a mechanism to identify and correct such problems but the OWNER is responsible for correcting these problems.

4.2.2. Operation and maintenance inspections using ground vehicles shall be timed so that routine maintenance will be done when access roads are firm, dry, or frozen, wherever possible. Maintenance vegetative clearing shall be done according to criteria spelled out in Appendix N.

4.3. CORRECTION OF LANDOWNER PROBLEMS

4.3.1. When the facility causes interference with radio, TV, or other stationary communication systems after the facility is operating, the OWNER will correct the interference with mechanical corrections to facility hardware, or antennas, or will install remote antennas or repeater stations, or will use other reasonable means to correct the problem.

4.3.2. The OWNER will respond to complaints of interference by investigating complaints to determine the origin of the interference. If the interference is not caused by the facility, the OWNER shall so inform the person bringing the complaint. The OWNER shall provide the STATE INSPECTOR with documentation of the evidence regarding the source of the interference if the person brings the complaint to the STATE INSPECTOR or DEQ.

4.4. HERBICIDES AND WEED CONTROL

4.4.1. Weed control, including any application of herbicides in the right-of-way, will be done by applicators currently licensed in Montana and in accordance with recommendations of the Montana Department of Agriculture, and in accordance with the right-of-way maintenance plan in Appendix N.

4.4.2. Herbicides will not be used in certain areas identified by DEQ and FWP, as listed in Appendix O or as requested by the LANDOWNER.

4.4.3. Proper herbicide application methods will be used to keep drift and nontarget damage to a minimum.

4.4.4. Herbicides must be applied according to label specifications and in accordance with 4.4.1 above. Only herbicides registered in compliance with applicable federal and state laws may be applied.

4.4.5. Herbicides shall not be sprayed during heavy rains or threat of heavy rains. Vegetation buffer zones shall be left along all identifiable stream channels. Herbicides shall not be used in any public water supply watershed identified by DEQ.

4.4.6. In areas disturbed by the transmission line, the OWNER will cooperate with LANDOWNERs in control of noxious weeds as designated by the weed control board having jurisdiction in the county crossed by the line.

4.4.6. The OWNER shall notify the STATE INSPECTOR in writing 30 days prior to any broadcast or aerial spraying of herbicides. The notice shall provide details as to the time, place, and justification for such spraying. DEQ, FWP, and the Montana Department of Agriculture shall have the opportunity to inspect the portion of the right-of-way or access roads before, during, and after spraying.

4.4.7. During the second and third growing seasons following the completion of restoration and reseeding, the OWNER and STATE INSPECTOR shall inspect the right-of-way and access roads for newly established stands of noxious weeds. The county weed control supervisor shall be invited to attend this inspection. In the event that stands of weeds are encountered, the OWNER shall take appropriate control measures.

4.5. MONITORING

4.5.1. DEQ may continue to monitor operation and maintenance activities for the life of the project in order to ensure compliance with the specifications in this section (see Appendix Q).

4.5.2. The OWNER will be responsible to DEQ for the term of the reclamation BOND (Section 0.8). Following BOND release, the OWNER will report to individual LANDOWNERs and managing agencies except as specified in conditions to the certificate.

4.5.3. Upon reasonable complaint from an affected LANDOWNER or managing agency, DEQ may require the OWNER to fund additional monitoring efforts to resolve problems that develop after release of the BONDs. Such efforts would be limited to determining compliance with these specifications and other conditions of the Certificate.

5.0 ABANDONMENT

When the transmission line is no longer used or useful, structures, conductors, and ground wires shall be removed and disturbed areas reclaimed using methods outlined in Appendix K.

APPENDICES

APPENDIX A: SENSITIVE AREAS FOR THE MATL TRANSMISSION LINE PROJECT

The following sensitive areas have been identified where special measures would be implemented to reduce impacts:

Land Use/Infrastructure

To minimize impacts to farming, DEQ could require the use of monopoles in the following sensitive areas to reduce impacts associated with diagonal crossing of farmland where routing around this farmland would be difficult. In addition single poles would be used on Alternative 2 where the proposed line would cross irrigated land and where the proposed transmission line would parallel an existing powerlines:

	Alternative 2	Alternative 3	Alternative 4
Milepost to Milepost	0 – 1.05 1.25-1.856.12-6.45 6.8-14 48.5-52.355.0-55.9–56.34-56.53 58.7-64.3 71.1-72.5(Belgian Hill Road reroute) 90-91.95 92.2-92.82 An additional 1.5 miles of monopole structures would be distributed among LANDOWNERs whose cropland is crossed on a diagonal based on easement negotiations.	0 – 87 (essentially all cropland and CRP)	32 – 36 44 - 45 62 - 66 82 - 83 107 - 109 112 – 114
Total Miles	23.56	<87	14

Geological/Soils

Black Horse Lake

Alternatives 2 and 3 at milepost 4.35 to 4.52 The alignment would be widened an additional 500 feet further south to allow flexibility in pole placement that would avoid an area occasionally flooded by Black Horse Lake.

Teton River Crossing Area

Precision mapping for unstable soils would be conducted along the alignment between the milepost markers identified below:

Alternative 2 between mileposts 35.3 and 35.8, 36.2 and 36.6, 36.9 and 37.4, and between mileposts38 and 40

Alternative 3 between mileposts 32.3 and 32.7, 33.08 and 33.47, and between mileposts 33.8 and 34.0 (where a landslide is crossed)

Alternative 4 between mileposts 36.18 and 36.7, 37.27 and 37.55, 37.9 and 38.4, and between mileposts 39.08 and 41.15

On Alternative 2 the alignment would be narrowed south of the river to avoid a landslide and north of the river would widened by an additional 250 feet north of the centerline between mileposts 38 and 40 to avoid areas of slope instability in this area. A similar measure would be applied should Alternative 4 be selected. .

Dry Fork of Marias River Crossing

Alternative 4 between mileposts 69.8 and 70.2, 70.5 and 70.8, 71.1 and 71.4, 71.65 and 72.8, 73.7 and 73.75, 75.1 and 75.7, 76.1 and 76.4, 77.05 and 77.4, 77.7 and 78.05, 80.15and 81.15, 81.35 and 81.9

The alignment would be widened to 1000 feet except on cultivated land to allow flexibility in pole placement should new cultural resource sites be encountered. Precision mapping for unstable soils should be conducted along the alignment between the milepost markers identified above. Structures and roads would be located to avoid unstable slopes. If cultural resource sites are encountered and the alignment moved, additional mapping of unstable soils would be required.

Marias River Crossing Area

Alternative 2 between mileposts 88.75 and 88.82, 89.1 and 89.4, 89.8 and 90.0, 90.35 and 90.72

Alternative 3 between mileposts 84.3 and 84.65, 84.78 and 84.95, 85.4 and 85.8

Alternative 4 between mileposts 95.2 and 97.1

Precision mapping for unstable soils must be conducted along the alignment between the milepost markers identified above.

Wildlife

On the selected alternative, areas of native vegetation that have not been surveyed for grouse leks would be surveyed prior to construction. Construction would not occur during the mating season from __ to __ within __ miles of leks. Anti perching devices would be installed and maintained on structures within __ miles of leks.

Overhead ground wires would be marked in the following areas within 2 miles of leks to reduce the potential for avian collisions with the transmission line.

Alternative 2 between mileposts 85.7 and 92

Alternative 3 between mileposts 81 and 87

Alternative 4 between mileposts 9.5 and 10.5 and 95.5 and 101.5

Overhead ground wires near wetlands would be marked to reduce the potential for collisions after inspection and field verification of the need for marking by FWP and FWS biologists.

Cultural Resources

Cultural resource surveys would be completed along unsurveyed areas with a high probability of discovering new sites. If cultural resource sites are discovered, structure locations and access routes would be modified to avoid sensitive features or the site recorded.

A professional archeologist would observe construction in high probability areas listed below during pole placement. If cultural resources are discovered during excavation, construction would be temporarily halted while theOWNER completes recovery of artifacts. Artifacts are the property of theLANDOWNER.

Alternative 2 between mileposts 0 and 15, 31 and 40, 52 and 60, 65 and 70, 72 and 83, 88 and 91, 98 and 101, 107 and 109, and 112 and 125

Alternative 3 between mileposts 0 and 15, 29 and 37, and 49 and 56, 61 and 66, 75 and 77, 83 and 86, 93 and 96, and 107 and 102

Alternative 4 between mileposts 0 and 15, 34 and 41, 55 and 57, 59 and 65, 70 and 91, 98 and 101, 108 and 111, 117 and 119, and 122 and 135

Wetlands

MATL would delineate wetlands within 500 feet of the alignment of the approved alternative for the portion through Teton County where wetlands have not been mapped by the USFWS.

Alternative 2 between mileposts 23 and 35

Alternative 3 between mileposts 17 and 42

Alternative 4 between mileposts 23 and 48

Vegetation

MATL would avoid placing roads and poles in designated 100 year floodplains.

Additional areas for monitoring or for application of mitigation measures may be identified following the pre-construction monitoring trip by the State Inspector or the Inspector's designee.

APPENDIX B: PERFORMANCE BOND SPECIFICATIONS

Construction and reclamation bonds shall be used to ensure performance with these specifications.

APPENDIX C: VARIATIONS IN RIGHT-OF-WAY WIDTH

See Appendix A for variations in right-of way widths.

DEQ does not recommend specific widths for construction easements. In accordance with the specifications, construction activities shall be contained in the minimum area necessary for safe and prudent construction.

DEQ does not recommend specific variations in right-of-way widths beyond those required to meet the National Electric Safety Code for electric transmission line operations and those necessary to meet standards established in ARM 17.20.1607(2).

APPENDIX D: AREAS WHERE CONSTRUCTION TIMING RESTRICTIONS APPLY

Except for those areas described in Appendix A, no restrictions in the timing of construction are recommended, beyond those considered necessary on the basis of on-site inspections of stream crossings required in Section 2.11.6 of these specifications and in other sections of these specifications, or as negotiated by LANDOWNERs in individual easement agreements.

APPENDIX E: AERONAUTICAL HAZARD MARKINGS

For all alternatives, the OWNER would install FAA-recommended colored aerial markers for aviation safety, as well as at crossings of the Conoco pipeline and crossings of the Cenex pipeline.

For all alternatives, the OWNER would install FAA-recommended aerial markers to make the line more visible to low flying aircraft at crossings of Interstate 15 and U.S. Highways 87 and 2. Marker balls would also be placed at all river crossings.

APPENDIX F: NOXIOUS WEED AREAS

Presence of noxious weed areas will be determined during a joint inspection by the OWNER, affected weed control boards, and LANDOWNERs. Weeds will be controlled as directed by county Noxious Weed Control programs, state law, and these Environmental Specifications.

APPENDIX G: GROUNDING SPECIFICATIONS

Powerlines, fences, and pipelines shall be grounded in accordance with the National Electrical Safety Code. The OWNER shall ensure that operation of the transmission line does not interfere with operation of cathodic protection systems of any pipelines crossed or paralleled.

APPENDIX H: CULVERT AND BRIDGE REQUIREMENTS

It does not appear that new culverts or bridges will be needed during construction. In the event a culvert or bridge is needed, it shall be installed to the standards set forth in Section 2.11.11 of the specifications and following review of the proposed installation by the STATE INSPECTOR. The STATE INSPECTOR may require site specific measures to reduce impacts.

APPENDIX I: HISTORIC PRESERVATION PLAN

The OWNER, in consultation with SHPO, shall develop a plan for identification and treatment of historical or archaeological sites affected by construction. Copies of these plans shall be part of this Appendix. The plan shall identify proposed treatments to be employed to avoid, mitigate or offset project effects on cultural resource sites or culturally significant tribal resources as agreed to by SHPO.

APPENDIX J: BURNING PLAN AND FIRE PLAN

The need for a detailed burning or fire plan is not anticipated for this project. In the event that burning is required prior to or during construction, such burning shall occur in accordance with sections 0.5, 2.13, and 2.14 of the specifications.

APPENDIX K: RECLAMATION AND REVEGETATION PLAN

At least 30 days prior to the start of construction, a reclamation and revegetation plan must be developed and submitted to DEQ for approval. This plan must, at a minimum, specify seeding mixtures, rates, seeding methods and timing of seeding. It must address LANDOWNER wishes, and satisfy requirements of the MPDES General Permit for Storm Water Discharges Associated with Construction Activity and ARM 17.20.1902(10).

If a LANDOWNER's management practices prevent the attainment of 90 percent perennial ground cover after five (5) years, revegetation on that land will be deemed adequate when portions of the right-of-way disturbed by construction and temporary roads are reclaimed to a state of usefulness similar to that existing prior to construction as determined by the STATE INSPECTOR.

APPENDIX L: AREAS WHERE STOCKPILING OF TOPSOIL, HYDRO SEEDING, FERTILIZING, OR MULCHING IS REQUIRED

At each area where cut and fill would be necessary to construct a road or crane pad, the OWNER shall salvage and stockpile topsoil, and spread the topsoil over disturbed areas following construction to increase re-vegetation success.

APPENDIX M: ROADS TO BE CLOSED AND/OR OBLITERATED

If permanent roads are necessary for construction or maintenance of the project, the OWNER shall close or obliterate the roads during decommissioning as requested by the LANDOWNER.

APPENDIX N: RIGHT-OF-WAY MANAGEMENT PLAN

DEQ does not recommend a specific right-of-way management plan. To the extent possible, all maintenance and operation activities shall be performed to comply with the requirements of the environmental specifications.

APPENDIX O: WATERSHEDS AND OTHER AREAS WHERE HERBICIDES ARE PROHIBITED

DEQ does not recommend any areas or watersheds where herbicide use is prohibited. Herbicide use shall conform to all applicable local, state, and federal restrictions.

APPENDIX P: NAME AND ADDRESS OF STATE INSPECTOR

STATE INSPECTOR OWNER'S LIAISON

Environmental Science Specialist
Montana Dept of Environmental Quality
P.O. Box 200901
1520 East Sixth Avenue
Helena, Montana 59620-0901
(406) 444-_____

APPENDIX Q: MONITORING PLAN

The STATE INSPECTOR is responsible for implementing this monitoring plan required by 75-20-303(b) and (c), MCA, and for reporting whether terms of the Certificate of Compliance and Environmental Specifications are being met, along with any conditions in the Stormwater Discharge permit and state land easements. The STATE INSPECTOR may identify additional mitigating measures in order to minimize environmental damage due to unique circumstances that arise during construction. These measures will be presented in writing to the OWNER's Liaison who will see that such measures are implemented in a timely manner.

Within 60 days of the completion of construction the STATE INSPECTOR shall review the project area for adequate cleanup, resoration of compacted soils, and any necessary regarding. The STATE INSPECTOR shall notify the OWNER of additional cleanup and restoration of disturbed areas. Once the area is restored, the restoration bond shall be released as indicated in ARM 17.20.1902(10)-(12).

In the growing season following construction the STATE INSPECTOR will determine the adequacy of erosion controls, check for successful seed germination, and determine in conjunction with county weed supervisors areas where weed control would be necessary.

After one and five complete growing seasons following construction, the STATE INSPECTOR will determine whether revegetation efforts have been sufficient to meet the requirements of Appendix K of these Environmental Specifications. If revegetation is not adequate to meet the requirements of Appendix K, the STATE INSPECTOR shall determine whether it is in the best interest of the State to seize the BOND or BONDs and reclaim and revegetate remaining disturbed areas or to continue to monitor these areas. The STATE INSPECTOR shall respond to complaints from citizens for the life of the project.

When violations of the Certificate are identified, the STATE INSPECTOR shall report the violation in writing to the OWNER, who shall immediately take corrective action. If violations continue, penalties described in 75-20-408, MCA may be imposed.

APPENDIX G:
ALTERNATIVES CONSIDERED BUT DISMISSED BY MATL

APPENDIX G-1 SUMMARY OF MATL'S DISMISSED ALTERNATIVES AND ALIGNMENT SEGMENTS		
Name of Alternatives or Segment	**Location**	**Reasons for Not Carrying Forward**
Old Primary – Segment (1)	Original Primary Alignment from Canadian Border to Cut Bank	This alignment was dropped because of its close proximity to two residences, many diagonal farmland crossings, and proximity to wells. This alignment was also dropped because of changes to the preferred Canadian border crossing, and because of limited right-of-way space due to a prairie pothole along Santa Rita Road.
Old Primary – Segment (2)	A subsequent segment revision of the Primary alignment with its border crossing farther west, connecting back to A1 approximately 8 miles to the south.	This segment was further modified (to what is shown as A3 on the map) and ultimately dropped. This change was based on a final revision to the preferred Canadian border crossing location to what is now shown on the proposed route. A2 was also dropped due to diagonal crossings of farmland/cropland and proximity to wells.
Old Primary – Segment (3)	A subsequent Primary Route segment revision altering A2, moving the Canadian border crossing slightly farther west. A3 connects back to A2 approximately 4 miles to the south of the Canadian border.	This segment of the Old Primary Route was further modified to what is now the proposed route as part of initial engineering/surveying in Spring '06 because it crossed wetland areas. This effort allowed for re-routing that better avoided wetlands and prairie potholes.
Old Primary – Segment (4)	Original Primary Route Segment – Camp Nine Road south to old Marias River Crossing	This segment was dropped because it did not make use of the available public lands near the Marias River crossing as is required under MFSA. Routing was modified to that of the proposed route to take advantage of these public lands (BLM).
Old Primary – Segment (5)	Original Primary Route Segment from south of the Marias River Crossing to Bullhead Road	This segment was dropped because it did not utilize available nearby rangeland and had a greater impact on croplands in this location. The proposed route better utilizes rangeland and has less impact on croplands.
Old Primary – Segment (6)	Original Primary Route Segment from Bullhead Creek to Burlington Northern Railroad	This segment was dropped due to many diagonal crossings of farmland/cropland. Routing was modified to that of the proposed route to minimize these impacts to agricultural lands and utilize available rangeland to a much greater extent.
Old Primary – Segment (7)	A subsequent Primary Route Segment 3-4 miles southwest of Conrad near Pondera Coulee.	This segment alternative was dropped due to the proximity of an occupied residence. This segment came within .2 miles to the east of a residence.
Old Primary – Segment (8)	Original Primary Route Segment 2-3 miles southwest of Conrad near Pondera Coulee.	This segment alternative was also dropped due to the proximity of an occupied residence. This segment came within .4 miles of a residence to the west.
Old Primary – Segment (9)	Original Primary Route Segment from two miles north of Brady to approximately three miles north of the Teton River	This segment was dropped to that of the proposed route in this location primarily to avoid impacts to six residences, and to lessen impacts to cropland. In particular this segment came within 0.5 mile of four residences north of Brady as well as within .5 mile of a school.

APPENDIX G-1
SUMMARY OF MATL'S DISMISSED ALTERNATIVES AND ALIGNMENT SEGMENTS

Name of Alternatives or Segment	Location	Reasons for Not Carrying Forward
Old Primary – Segment (9-south)	Original Primary Route Segment around the Teton River Crossing	This segment was dropped because it did not take advantage of nearby public lands (DNRC lands to the west) for the Teton River Crossing and because of probable cultural resources (tipi ring sites) on the northern bluffs of the Teton River in this specific location. The Teton River crossing was moved to the west in order to make use of available public lands and avoid potential cultural impacts, as well as to avoid mature riparian cottonwood forest.
Old Primary – Segment (10)	A subsequent Primary Route Segment that heads west from a point along the Current Primary Route south of Dutton, and continues 4-5 miles to the east where it connects with the Old Primary Route and continues two miles south.	This segment was dropped due to environmental and engineering constraints (slope stability issues) in constructing the line across Timber Coulee in this locale. In addition, this segment alternative did not resolve the goal of minimizing diagonal crossings of farmland to the extent of the current proposed route.
Old Primary – Segment (11)	Another subsequent Primary Route Segment starting several miles south of A10, that heads west ~7 miles to where it connects with the Old Primary Route	This segment was dropped because it crosses close to an existing range/farm near its eastern terminus. In addition, this segment alternative did not resolve the goal of minimizing diagonal crossings of farmland to the extent of the Current Primary Route.
Old Primary – Segment (12)	Original Alternative that followed east of the Great Falls Shooting Sports Complex	This segment conflicts with plans for expansion of the shooting sports complex, including plans for new and expanded buildings. Given this conflict, this segment was dropped in favor of the proposed route which is located west of the complex.
Old Alternative B Segment (1)	Original Alternative B from Canadian Border to where it connects with the Old Primary Route	Original Alternative B was modified and moved to the east to what is labeled as B2 to further avoid impacts to wetlands. In addition the original Alternative B also crossed within .25 mile of an occupied residence.
Old Alternative B Segment (2)	A subsequent Alternative B segment from Canadian Border to (new) Primary Route	This segment was dropped to avoid impacts to nearby residences and because there is no longer a Canadian Alternative or border crossing in this specific location. Alternative B now starts near Cut Bank and continues south to the Great Falls terminus.
Old Alternative B Segment (3)	Original Alternative B near Bullhead Creek	Various small sections of this segment were modified to what is now the proposed alignment to better avoid residences and irrigated croplands, avoid wetlands, as well as to improve the alignment of the route with property boundaries.
Old Alternative B Segment (4)	Original Alternative B from Dry Fork of the Marias south to South Pondera Coulee	Various small sections of this segment were modified to what is now the proposed alignment to better avoid residences and irrigated croplands, as well as to improve the alignment of the route with property boundaries.
Original Route C	From Canadian Border to Great Falls	Original Route which was modified to what is labeled as "Modified Route C" (C2) below to better avoid residences and passage across irrigated croplands, as well as to improve the alignment of the route with property boundaries.

APPENDIX G-1 SUMMARY OF MATL'S DISMISSED ALTERNATIVES AND ALIGNMENT SEGMENTS		
Name of Alternatives or Segment	**Location**	**Reasons for Not Carrying Forward**
Modified Route C	From Canadian Border to Great Falls	The entire C2 routing was dismissed because it was the longest of the considered routes and would be the most costly to design/construct. More estimated acreage would be required (access roads, staging areas, etc.) than the Primary Route (43 acres versus 37 acres). Alternative C also had relatively higher potential impacts to visual resources (comes within 1 mile of 160 developed residences as compared to 146 for the Preferred Route). C2 also had a larger impact to prime farmland (44 miles versus 33 miles) and farmland of statewide importance (47 miles versus 43 miles) as compared to the Primary Route. In addition, this route did not match up with the finalized secondary Canadian border crossing alternative (moved to the east).
August Version Route C	From Canadian Border to Great Falls	This route was prepared for the MFSA application. This route was dismissed because it is the longest alternative, would require more disturbance, and very close to or crosses four houses.
Old Western Great Falls Alternative	Original agency alternative that connects with Great Falls to the south and west of the Primary Alternative	This alternative was originally identified in order to provide another alternative in the in the southern quarter of the project area that made wide use of rangeland instead of cropped land. However, this alternative was dropped/modified to what is labeled as W2 in order to avoid crossing the existing WAPA line and improve its alignment with property and section line boundaries.
Modified Western Great Falls Alternative	Modified agency alternative that connects with Great Falls to the south and west of the Primary Alternative	After flyover verification, this revised W2 alternative was developed to minimize deflections and parallel the WAPA line more closely. This alternative has been retained because of its use of range land and pasture as well as its more extensive use of section and property boundaries.
Cut Bank to Shelby Alternative	Alternative that follows from Cut Bank to Shelby	This alternative was dismissed in the original application due to the need for extended diagonal traversing of agricultural lands. This alternative also had more engineering requirements and land requirements, and would have resulted in higher project costs.
Shelby South Alternative	Alternative that follows from Shelby south to Great Falls	This alternative was dismissed in the original application due to engineering constraints and the potential for disturbing many more cultural and archaeological sites near the Maris River breaks area south of Shelby.
Eastern Alternative	Alternative that follows Interstate 15 from Border to Shelby	This alternative was dismissed in the original application due to difficulties with the connection required via the Shelby South alternative described above.
NWE Alternative	Rebuilds the existing NWE 115-kV line.	This alternative was dismissed in the original application. This route was considered infeasible for economic reasons, and there would also have been a logistical difficulty in maintaining service while upgrading the existing line.

APPENDIX H:
LAND USE TYPES BY MILEPOST

The following tables provide a breakdown of land uses along the alignments analyzed in the EIS. Riparian, forest and right of way land uses are included in the summary tables in the EIS as "Other." Mile posts run from south to north. The analysis was done with GIS, based on photographic interpretation of the land uses.

Appendix H-1
Land Use Categories Crossed By Alternative 2

Mile Post Begin	Mile Post End	Distance (Miles)	Land Use
0.00	1.50	1.50	Non-Irrigated
1.50	1.52	0.03	Rangeland/Native
1.52	1.58	0.05	Riparian
1.58	1.65	0.08	Rangeland/Native
1.65	1.71	0.06	Riparian
1.71	1.73	0.02	Rangeland/Native
1.73	1.97	0.24	Non-Irrigated
1.97	2.01	0.04	Riparian
2.01	2.03	0.02	Non-Irrigated
2.03	2.05	0.02	Riparian
2.05	5.29	3.24	Non-Irrigated
5.29	8.20	2.92	Rangeland/Native
8.20	9.11	0.91	Non-Irrigated
9.11	9.15	0.03	Riparian
9.15	11.18	2.03	Non-Irrigated
11.18	11.52	0.34	Rangeland/Native
11.52	11.95	0.43	Non-Irrigated
11.95	12.08	0.12	Rangeland/Native
12.08	12.21	0.14	Riparian
12.21	12.53	0.32	Non-Irrigated
12.53	12.55	0.02	Riparian
12.55	14.94	2.39	Non-Irrigated
14.94	15.21	0.26	Rangeland/Native
15.21	15.77	0.56	Non-Irrigated
15.77	15.82	0.05	Rangeland/Native
15.82	16.95	1.13	Non-Irrigated
16.95	18.14	1.20	Rangeland/Native
18.14	19.41	1.26	Non-Irrigated
19.41	19.43	0.03	Riparian
19.43	26.77	7.34	Non-Irrigated

Appendix H-1 Land Use Categories Crossed By Alternative 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
26.77	26.88	0.11	Riparian
26.88	27.15	0.27	Non-Irrigated
27.15	27.30	0.15	Riparian
27.30	29.84	2.54	Non-Irrigated
29.84	29.92	0.08	Right of way
29.92	30.96	1.04	Non-Irrigated
30.96	36.98	6.03	Rangeland/Native
36.98	37.60	0.62	Non-Irrigated
37.60	37.84	0.23	Rangeland/Native
37.84	39.06	1.22	Non-Irrigated
39.06	39.43	0.37	Rangeland/Native
39.43	39.58	0.15	Non-Irrigated
39.58	39.63	0.05	Rangeland/Native
39.63	39.80	0.17	Non-Irrigated
39.80	39.97	0.17	Rangeland/Native
39.97	40.05	0.08	Riparian
40.05	41.37	1.32	Rangeland/Native
41.37	43.96	2.59	Non-Irrigated
43.96	44.32	0.36	Rangeland/Native
44.32	44.46	0.14	Irrigated
44.46	44.87	0.40	Non-Irrigated
44.87	44.98	0.11	Rangeland/Native
44.98	45.13	0.15	Non-Irrigated
45.13	45.49	0.36	Rangeland/Native
45.49	46.97	1.48	Non-Irrigated
46.97	47.04	0.07	Rangeland/Native
47.04	47.35	0.31	Non-Irrigated
47.35	47.38	0.02	Rangeland/Native
47.38	48.43	1.05	Non-Irrigated
48.43	50.02	1.59	Rangeland/Native
50.02	50.27	0.25	Non-Irrigated
50.27	51.40	1.13	Rangeland/Native
51.40	51.51	0.11	Non-Irrigated
51.51	51.70	0.19	Rangeland/Native

Appendix H-1 Land Use Categories Crossed By Alternative 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
51.70	51.77	0.06	Non-Irrigated
51.77	51.79	0.02	Rangeland/Native
51.79	51.83	0.04	Non-Irrigated
51.83	51.90	0.07	Rangeland/Native
51.90	51.96	0.06	Non-Irrigated
51.96	52.03	0.07	Rangeland/Native
52.03	52.10	0.07	Non-Irrigated
52.10	52.48	0.38	Rangeland/Native
52.48	52.57	0.09	Non-Irrigated
52.57	52.72	0.15	Rangeland/Native
52.72	52.75	0.03	Non-Irrigated
52.75	52.90	0.15	Rangeland/Native
52.90	53.10	0.20	Non-Irrigated
53.10	53.18	0.08	Rangeland/Native
53.18	55.54	2.36	Non-Irrigated
55.54	56.06	0.52	Rangeland/Native
56.06	56.10	0.04	Right of way
56.10	56.44	0.34	Non-Irrigated
56.44	56.86	0.42	Irrigated
56.86	56.95	0.09	Rangeland/Native
56.95	56.97	0.02	Riparian
56.97	57.07	0.10	Rangeland/Native
57.07	57.10	0.02	Riparian
57.10	57.17	0.08	Rangeland/Native
57.17	57.21	0.03	Non-Irrigated
57.21	57.25	0.04	Rangeland/Native
57.25	57.75	0.51	Non-Irrigated
57.75	57.78	0.02	Riparian
57.78	59.01	1.24	Non-Irrigated
59.01	59.03	0.01	Water
59.03	59.19	0.17	Non-Irrigated
59.19	59.56	0.37	Irrigated
59.56	59.57	0.01	Water
59.57	59.93	0.36	Irrigated

Appendix H-1 Land Use Categories Crossed By Alternative 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
59.93	59.95	0.02	Right of way
59.95	60.17	0.21	Irrigated
60.17	60.20	0.03	Rangeland/Native
60.20	61.19	0.99	Non-Irrigated
61.19	61.26	0.07	Rangeland/Native
61.26	61.61	0.35	Riparian
61.61	62.75	1.14	Non-Irrigated
62.75	63.31	0.56	Rangeland/Native
63.31	64.29	0.98	Non-Irrigated
64.29	65.42	1.13	Rangeland/Native
65.42	67.35	1.93	Non-Irrigated
67.35	67.43	0.08	Riparian
67.43	68.81	1.38	Non-Irrigated
68.81	68.95	0.14	Riparian
68.95	71.18	2.23	Non-Irrigated
71.18	71.32	0.15	Rangeland/Native
71.32	71.57	0.24	Non-Irrigated
71.57	71.83	0.26	Rangeland/Native
71.83	71.89	0.06	Non-Irrigated
71.89	72.05	0.16	Rangeland/Native
72.05	72.18	0.12	Non-Irrigated
72.18	72.37	0.19	Rangeland/Native
72.37	72.73	0.37	Non-Irrigated
72.73	73.18	0.45	Rangeland/Native
73.18	73.37	0.19	Non-Irrigated
73.37	73.43	0.05	Right of way
73.43	73.81	0.39	Rangeland/Native
73.81	75.73	1.92	Non-Irrigated
75.73	75.84	0.11	Riparian
75.84	75.99	0.15	Non-Irrigated
75.99	76.38	0.39	Rangeland/Native
76.38	76.67	0.29	Non-Irrigated
76.67	76.83	0.16	Rangeland/Native
76.83	76.89	0.06	Right of way

Appendix H-1 Land Use Categories Crossed By Alternative 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
76.89	76.96	0.07	Rangeland/Native
76.96	77.88	0.91	Non-Irrigated
77.88	77.95	0.07	Rangeland/Native
77.95	78.54	0.59	Non-Irrigated
78.54	78.59	0.05	Riparian
78.59	78.69	0.10	Rangeland/Native
78.69	81.20	2.52	Non-Irrigated
81.20	81.25	0.05	Riparian
81.25	81.56	0.31	Non-Irrigated
81.56	81.65	0.09	Rangeland/Native
81.65	89.92	8.27	Non-Irrigated
89.92	90.16	0.25	Rangeland/Native
90.16	90.63	0.47	Non-Irrigated
90.63	91.06	0.43	Rangeland/Native
91.06	91.35	0.29	Non-Irrigated
91.35	91.70	0.35	Rangeland/Native
91.70	92.23	0.53	Non-Irrigated
92.23	92.31	0.08	Riparian
92.31	92.34	0.03	Rangeland/Native
92.34	92.44	0.10	Non-Irrigated
92.44	92.65	0.21	Rangeland/Native
92.65	93.12	0.46	Non-Irrigated
93.12	93.34	0.23	Rangeland/Native
93.34	93.99	0.65	Non-Irrigated
93.99	94.33	0.34	Rangeland/Native
94.33	95.92	1.58	Non-Irrigated
95.92	96.08	0.17	Riparian
96.08	98.14	2.05	Non-Irrigated
98.14	98.17	0.04	Rangeland/Native
98.17	98.19	0.02	Riparian
98.19	98.22	0.03	Rangeland/Native
98.22	99.10	0.88	Non-Irrigated
99.10	99.16	0.06	Rangeland/Native
99.16	99.59	0.43	Non-Irrigated

Appendix H-1 Land Use Categories Crossed By Alternative 2			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
99.59	99.69	0.10	Rangeland/Native
99.69	99.87	0.19	Non-Irrigated
99.87	99.91	0.04	Right of way
99.91	99.96	0.05	Non-Irrigated
99.96	100.01	0.05	Rangeland/Native
100.01	100.92	0.92	Non-Irrigated
100.92	100.95	0.03	Riparian
100.95	102.90	1.95	Non-Irrigated
102.90	104.31	1.42	Rangeland/Native
104.31	105.82	1.51	Non-Irrigated
105.82	106.80	0.97	Rangeland/Native
106.80	107.98	1.19	Non-Irrigated
107.98	111.44	3.46	Rangeland/Native
111.44	111.84	0.40	Non-Irrigated
111.84	112.00	0.16	Rangeland/Native
112.00	122.69	10.69	Non-Irrigated
122.69	123.16	0.47	Rangeland/Native
123.16	123.47	0.31	Non-Irrigated
123.47	125.13	1.67	Rangeland/Native
125.13	125.67	0.54	Non-Irrigated
125.67	125.83	0.16	Rangeland/Native
125.83	126.82	0.99	Non-Irrigated
126.82	127.75	0.93	Right of way
127.75	128.24	0.49	Non-Irrigated
128.24	128.42	0.18	Rangeland/Native
128.42	128.46	0.04	Riparian
128.46	128.73	0.28	Non-Irrigated
128.73	128.77	0.04	Right of way
128.77	129.60	0.83	Non-Irrigated
0.00	129.60	129.60	Miles

Appendix H-2 Land Use Categories Crossed By Alternative 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
0.00	0.04	0.04	Non-Irrigated
0.04	0.79	0.75	Rangeland/Native
0.79	3.31	2.52	Non-Irrigated
3.31	3.46	0.15	Rangeland/Native
3.46	4.00	0.54	Non-Irrigated
4.00	5.65	1.67	Rangeland/Native
5.65	5.95	0.30	Non-Irrigated
5.95	6.43	0.48	Rangeland/Native
6.43	18.96	12.52	Non-irrigated
18.96	19.04	0.08	Rangeland/Native
19.04	20.85	1.81	Non-Irrigated
20.85	20.92	0.07	Rangeland/Native
20.92	21.00	0.08	Riparian
21.00	21.71	0.71	Non-Irrigated
21.71	22.09	0.39	Rangeland/Native
22.09	23.60	1.50	Non-Irrigated
23.60	23.82	0.22	Rangeland/Native
23.82	30.75	6.94	Non-Irrigated
30.75	30.79	0.03	Riparian
30.79	32.15	1.37	Non-Irrigated
32.15	32.64	0.48	Rangeland/Native
32.64	33.00	0.37	Non-Irrigated
33.00	33.63	0.63	Rangeland/Native
33.63	33.74	0.10	Riparian
33.74	33.77	0.03	Forest
33.77	34.01	0.23	Rangeland/Native
34.01	47.66	13.66	Non-Irrigated
47.66	47.78	0.12	Rangeland/Native
47.78	47.81	0.02	Riparian
47.81	48.24	0.43	Non-Irrigated
48.24	48.39	0.15	Rangeland/Native
48.39	48.41	0.02	Riparian
48.41	49.16	0.75	Non-Irrigated

Appendix H-2 Land Use Categories Crossed By Alternative 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
49.16	49.20	0.03	Rangeland/Native
49.20	49.34	0.14	Non-Irrigated
49.34	49.38	0.04	Rangeland/Native
49.38	49.42	0.04	Riparian
49.42	49.65	0.23	Rangeland/Native
49.65	49.93	0.28	Non-Irrigated
49.93	50.05	0.12	Right of way
50.05	52.39	2.34	Non-Irrigated
52.39	52.74	0.35	Rangeland/Native
52.74	52.77	0.04	Right of way
52.95	53.26	0.31	Rangeland/Native
53.26	53.78	0.52	Non-Irrigated
53.78	53.91	0.12	Rangeland/Native
53.91	54.03	0.12	Non-Irrigated
54.03	54.10	0.07	Rangeland/Native
54.10	54.15	0.05	Non-Irrigated
54.15	54.24	0.09	Rangeland/Native
54.24	57.08	2.84	Non-Irrigated
57.08	57.12	0.04	Residential
57.12	57.19	0.07	Right of way
57.19	57.86	0.67	Non-Irrigated
57.86	57.95	0.09	Rangeland/Native
57.95	58.04	0.08	Riparian
58.04	58.17	0.13	Non-irrigated
58.17	58.25	0.08	Rangeland/Native
58.25	58.33	0.09	Riparian
58.33	58.37	0.04	Rangeland/Native
58.37	58.46	0.09	Non-Irrigated
58.46	58.49	0.03	Rangeland/Native
58.49	58.53	0.03	Non-Irrigated
58.53	59.78	1.26	Irrigated
59.78	60.69	0.91	Non-Irrigated
60.69	61.46	0.77	Rangeland/Native
61.46	62.08	0.62	Non-Irrigated

Appendix H-2 Land Use Categories Crossed By Alternative 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
62.08	62.30	0.22	Rangeland/Native
62.30	62.41	0.11	Riparian
62.41	62.48	0.07	Rangeland/Native
62.48	62.83	0.36	Irrigated
62.83	62.86	0.03	Riparian
62.86	65.01	2.15	Non-Irrigated
65.01	65.11	0.10	Rangeland/Native
65.11	65.45	0.34	Non-Irrigated
65.45	65.49	0.04	Rangeland/Native
65.49	65.74	0.25	Non-Irrigated
65.74	66.00	0.26	Rangeland/Native
66.00	66.04	0.04	Non-Irrigated
66.04	66.24	0.20	Irrigated
66.24	66.31	0.07	Non-Irrigated
66.31	66.36	0.05	Rangeland/Native
66.36	66.52	0.16	Non-Irrigated
66.52	66.78	0.25	Irrigated
66.78	66.84	0.06	Rangeland/Native
66.84	66.92	0.09	Non-Irrigated
66.92	66.96	0.04	Rangeland/Native
66.96	67.12	0.16	Riparian
67.12	67.15	0.03	Rangeland/Native
67.15	67.19	0.04	Riparian
67.19	67.53	0.34	Rangeland/Native
67.53	67.61	0.08	Riparian
67.61	68.46	0.85	Irrigated
68.46	68.52	0.06	Residential
68.52	69.21	0.69	Non-Irrigated
69.21	69.24	0.03	Riparian
69.24	69.33	0.09	Non-Irrigated
69.33	69.48	0.15	Rangeland/Native
69.48	70.35	0.87	Non-Irrigated
70.35	70.40	0.05	Rangeland/Native
70.40	70.58	0.18	Irrigated

Appendix H-2 Land Use Categories Crossed By Alternative 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
70.58	70.65	0.08	Non-Irrigated
70.65	71.46	0.81	Irrigated
71.46	71.50	0.04	Riparian
71.50	71.52	0.02	Non-Irrigated
71.52	72.42	0.90	Irrigated
72.42	73.18	0.76	Non-Irrigated
73.18	73.94	0.77	Irrigated
73.94	74.26	0.32	Non-Irrigated
74.26	74.48	0.22	Rangeland/Native
74.48	75.01	0.53	Non-Irrigated
75.01	75.03	0.03	Riparian
75.03	75.52	0.49	Non-Irrigated
75.52	75.59	0.07	Rangeland/Native
75.59	75.62	0.02	Riparian
75.62	75.69	0.07	Rangeland/Native
75.69	75.71	0.02	Riparian
75.71	75.84	0.13	Rangeland/Native
75.84	78.53	2.68	Non-Irrigated
78.53	78.72	0.19	Rangeland/Native
78.72	79.45	0.73	Non-Irrigated
79.45	79.52	0.07	Rangeland/Native
79.52	79.69	0.17	Irrigated
79.69	79.72	0.02	Riparian
79.72	79.82	0.11	Irrigated
79.82	79.97	0.14	Non-Irrigated
79.97	80.92	0.95	Irrigated
80.92	83.23	2.31	Non-Irrigated
83.23	84.22	0.99	Rangeland/Native
84.22	84.31	0.08	Forest
84.31	84.41	0.10	Water
84.41	84.53	0.11	Rangeland/Native
84.53	85.22	0.70	Non-Irrigated
85.22	85.25	0.03	Residential
85.25	86.60	1.35	Non-Irrigated

Appendix H-2 Land Use Categories Crossed By Alternative 3			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
86.60	86.84	0.24	Rangeland/Native
86.84	87.41	0.58	Non-Irrigated
87.41	93.49	6.08	Rangeland/Native
93.49	94.52	1.03	Non-Irrigated
94.52	94.61	0.08	Right of way
94.61	97.14	2.54	Non-Irrigated
97.14	97.30	0.16	Riparian
97.30	97.57	0.26	Non-Irrigated
97.57	97.68	0.11	Riparian
97.68	106.03	8.36	Non-Irrigated
106.03	107.28	1.25	Rangeland/Native
107.28	111.38	4.10	Non-Irrigated
111.38	111.65	0.26	Rangeland/Native
111.65	111.80	0.16	Non-Irrigated
111.80	113.33	1.52	Rangeland/Native
113.33	113.82	0.49	Non-Irrigated
113.82	114.07	0.25	Rangeland/Native
114.07	115.17	1.11	Non-Irrigated
115.17	115.40	0.22	Rangeland/Native
115.40	116.97	1.57	Non-Irrigated
116.97	117.23	0.26	Rangeland/Native
117.23	117.93	0.70	Non-Irrigated
117.93	117.96	0.03	Riparian
117.96	118.49	0.52	Rangeland/Native
118.49	121.31	2.82	Non-Irrigated
121.31	121.34	0.03	Rangeland/Native
0.00	121.34	121.34	Miles

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
0.00	0.13	0.13	Non-Irrigated
0.13	0.73	0.61	Rangeland/Native
0.73	0.78	0.05	Riparian
0.78	0.87	0.09	Rangeland/Native
0.87	3.15	2.28	Non-Irrigated
3.15	3.96	0.81	Rangeland/Native
3.96	4.04	0.08	Non-Irrigated
4.04	4.85	0.81	Rangeland/Native
4.85	5.09	0.24	Non-Irrigated
5.09	5.46	0.38	Rangeland/Native
5.46	5.52	0.05	Non-Irrigated
5.52	5.80	0.28	Rangeland/Native
5.80	5.81	0.02	Riparian
5.81	6.01	0.20	Non-Irrigated
6.01	7.28	1.26	Rangeland/Native
7.28	7.45	0.17	Non-Irrigated
7.45	8.05	0.60	Rangeland/Native
8.05	8.06	0.01	Riparian
8.06	9.94	1.88	Rangeland/Native
9.94	9.95	0.01	Right of Way
9.95	10.09	0.14	Rangeland/Native
10.09	10.24	0.15	Agriculture
10.24	11.98	1.74	Rangeland/Native
11.98	12.40	0.42	Non-Irrigated
12.40	12.76	0.36	Rangeland/Native
12.76	12.96	0.20	Agriculture
12.96	14.65	1.69	Rangeland/Native
14.65	15.12	0.47	Non-Irrigated
15.12	15.21	0.09	Rangeland/Native
15.21	15.50	0.29	Non-Irrigated
15.50	15.72	0.22	Agriculture
15.72	15.76	0.04	Right of Way
15.76	19.72	3.95	Non-Irrigated

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
19.72	21.54	1.81	Rangeland/Native
21.54	21.85	0.31	Agriculture
21.85	21.93	0.08	Rangeland/Native
21.93	21.95	0.02	Riparian
21.95	22.78	0.83	Rangeland/Native
22.78	22.82	0.05	Riparian
22.82	23.30	0.48	Rangeland/Native
23.30	23.31	0.01	Riparian
23.31	23.39	0.08	Rangeland/Native
23.39	23.75	0.36	Agriculture
23.75	23.79	0.03	Riparian
23.79	24.09	0.30	Agriculture
24.09	25.11	1.02	Non-Irrigated
25.11	26.27	1.16	Rangeland/Native
26.27	26.71	0.44	Agriculture
26.71	26.82	0.11	Rangeland/Native
26.82	27.26	0.44	Agriculture
27.26	29.21	1.95	Non-Irrigated
29.21	29.24	0.03	Riparian
29.24	30.15	0.92	Non-Irrigated
30.15	30.20	0.05	Rangeland/Native
30.20	30.25	0.05	Non-Irrigated
30.25	30.29	0.04	Right of Way
30.29	30.47	0.19	Non-Irrigated
30.47	30.57	0.10	Rangeland/Native
30.57	31.00	0.43	Non-Irrigated
31.00	31.06	0.06	Rangeland/Native
31.06	31.94	0.88	Non-Irrigated
31.94	31.97	0.03	Rangeland/Native
31.97	31.99	0.02	Riparian
31.99	32.03	0.04	Rangeland/Native
32.03	32.46	0.43	Non-Irrigated
32.46	32.51	0.05	Riparian
32.51	34.64	2.13	Non-Irrigated

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
34.64	34.71	0.07	Rangeland/Native
34.71	36.17	1.46	Non-Irrigated
36.17	36.40	0.24	Rangeland/Native
36.40	36.42	0.01	Riparian
36.42	36.43	0.01	Rangeland/Native
36.43	36.46	0.03	Riparian
36.46	36.68	0.23	Rangeland/Native
36.68	37.26	0.58	Non-Irrigated
37.26	37.38	0.12	Rangeland/Native
37.38	37.39	0.01	Riparian
37.39	37.52	0.13	Rangeland/Native
37.52	37.85	0.33	Non-Irrigated
37.85	37.99	0.14	Agriculture
37.99	38.37	0.37	Rangeland/Native
38.37	38.41	0.04	Forest
38.41	38.49	0.08	Riparian
38.49	38.54	0.05	Non-Irrigated
38.54	38.88	0.34	Rangeland/Native
38.88	39.07	0.19	Non-Irrigated
39.07	39.42	0.35	Rangeland/Native
39.42	39.71	0.29	Non-Irrigated
39.71	40.14	0.43	Rangeland/Native
40.14	40.61	0.47	Non-Irrigated
40.61	41.11	0.50	Rangeland/Native
41.11	41.24	0.13	Non-Irrigated
41.24	41.34	0.11	Rangeland/Native
41.34	41.62	0.28	Non-Irrigated
41.62	41.69	0.07	Rangeland/Native
41.69	49.85	8.15	Non-Irrigated
49.85	49.88	0.03	Riparian
49.88	55.78	5.88	Non-Irrigated
55.78	55.81	0.04	Rangeland/Native
55.81	59.00	3.18	Non-Irrigated
59.00	59.26	0.26	Rangeland/Native

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
59.26	60.26	0.99	Non-Irrigated
60.26	60.28	0.02	Right of Way
60.28	60.41	0.13	Non-Irrigated
60.41	60.47	0.06	Rangeland/Native
60.47	60.48	0.01	Riparian
60.48	60.52	0.04	Rangeland/Native
60.52	60.55	0.03	Riparian
60.55	60.64	0.09	Rangeland/Native
60.64	61.22	0.58	Non-Irrigated
61.22	61.27	0.05	Rangeland/Native
61.27	61.29	0.03	Non-Irrigated
61.29	62.30	1.01	Irrigated
62.30	62.57	0.27	Non-Irrigated
62.57	62.80	0.23	Irrigated
62.80	62.90	0.10	Rangeland/Native
62.90	63.00	0.10	Riparian
63.00	63.06	0.06	Rangeland/Native
63.06	63.40	0.34	Non-Irrigated
63.40	63.86	0.46	Irrigated
63.86	64.75	0.89	Non-Irrigated
64.75	64.88	0.13	Rangeland/Native
64.88	65.29	0.41	Non-Irrigated
65.29	65.43	0.13	Rangeland/Native
65.43	65.46	0.03	Non-Irrigated
65.46	65.61	0.15	Rangeland/Native
65.61	66.65	1.04	Non-Irrigated
66.65	66.75	0.10	Rangeland/Native
66.75	66.88	0.13	Non-Irrigated
66.88	67.39	0.52	Rangeland/Native
67.39	69.80	2.40	Non-Irrigated
69.80	69.92	0.12	Rangeland/Native
69.92	69.98	0.06	Agriculture
69.98	70.12	0.14	Rangeland/Native
70.12	70.41	0.29	Non-Irrigated

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
70.41	71.94	1.53	Rangeland/Native
71.94	71.95	0.01	Right of Way
71.95	72.51	0.55	Rangeland/Native
72.51	72.59	0.09	Right of Way
72.59	72.75	0.16	Rangeland/Native
72.75	72.77	0.02	Right of Way
72.77	72.85	0.08	Non-Irrigated
72.85	72.87	0.02	Rangeland/Native
72.87	72.90	0.03	Riparian
72.90	73.36	0.46	Rangeland/Native
73.36	73.44	0.08	Non-Irrigated
73.44	73.48	0.03	Rangeland/Native
73.48	73.49	0.01	Right of Way
73.49	73.51	0.02	Rangeland/Native
73.51	73.56	0.05	Non-Irrigated
73.56	73.59	0.03	Rangeland/Native
73.59	73.59	0.01	Riparian
73.59	73.89	0.30	Rangeland/Native
73.89	73.96	0.07	Riparian
73.96	74.48	0.52	Rangeland/Native
74.48	74.49	0.01	Right of Way
74.49	75.21	0.72	Rangeland/Native
75.21	75.22	0.01	Right of Way
75.22	75.60	0.37	Rangeland/Native
75.60	75.60	0.00	Riparian
75.60	75.61	0.01	Rangeland/Native
75.61	75.62	0.00	Riparian
75.62	75.64	0.03	Rangeland/Native
75.64	75.65	0.00	Riparian
75.65	76.34	0.69	Rangeland/Native
76.34	76.39	0.05	Riparian
76.39	76.58	0.19	Rangeland/Native
76.58	76.82	0.24	Non-Irrigated
76.82	77.79	0.97	Rangeland/Native

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
77.79	77.80	0.01	Agriculture
77.80	78.44	0.63	Rangeland/Native
78.44	78.59	0.15	Agriculture
78.59	79.10	0.51	Rangeland/Native
79.10	79.34	0.24	Non-Irrigated
79.34	79.43	0.09	Rangeland/Native
79.43	79.73	0.30	Non-Irrigated
79.73	79.91	0.17	Rangeland/Native
79.91	80.12	0.21	Non-Irrigated
80.12	80.44	0.32	Rangeland/Native
80.44	80.45	0.01	Riparian
80.45	80.98	0.52	Rangeland/Native
80.98	81.00	0.02	Riparian
81.00	81.62	0.62	Rangeland/Native
81.62	81.66	0.04	Riparian
81.66	81.70	0.04	Rangeland/Native
81.70	81.71	0.02	Riparian
81.71	81.76	0.04	Rangeland/Native
81.76	81.97	0.21	Right of Way
81.97	83.21	1.24	Non-Irrigated
83.21	83.25	0.04	Right of Way
83.25	83.77	0.52	Rangeland/Native
83.77	86.14	2.36	Non-Irrigated
86.14	86.21	0.08	Rangeland/Native
86.21	86.41	0.20	Non-Irrigated
86.41	86.56	0.15	Rangeland/Native
86.56	86.59	0.03	Non-Irrigated
86.59	86.74	0.15	Rangeland/Native
86.74	86.83	0.09	Non-Irrigated
86.83	87.21	0.38	Rangeland/Native
87.21	87.29	0.07	Non-Irrigated
87.29	87.35	0.07	Rangeland/Native
87.35	87.41	0.06	Non-Irrigated
87.41	87.48	0.07	Rangeland/Native

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
87.48	87.52	0.04	Non-Irrigated
87.52	87.55	0.02	Rangeland/Native
87.55	87.61	0.06	Non-Irrigated
87.61	87.80	0.19	Rangeland/Native
87.80	87.92	0.11	Non-Irrigated
87.92	89.05	1.13	Rangeland/Native
89.05	89.30	0.25	Non-Irrigated
89.30	90.89	1.59	Rangeland/Native
90.89	91.94	1.05	Non-Irrigated
91.94	91.97	0.02	Rangeland/Native
91.97	92.28	0.31	Non-Irrigated
92.28	92.35	0.07	Rangeland/Native
92.35	93.83	1.48	Non-Irrigated
93.83	94.19	0.36	Rangeland/Native
94.19	94.34	0.15	Non-Irrigated
94.34	94.46	0.11	Rangeland/Native
94.46	94.86	0.40	Non-Irrigated
94.86	95.00	0.14	Irrigated
95.00	95.36	0.36	Rangeland/Native
95.36	97.96	2.59	Non-Irrigated
97.96	99.28	1.32	Rangeland/Native
99.28	99.36	0.08	Riparian
99.36	99.53	0.17	Rangeland/Native
99.53	99.70	0.17	Non-Irrigated
99.70	99.76	0.05	Rangeland/Native
99.76	99.90	0.15	Non-Irrigated
99.90	100.28	0.37	Rangeland/Native
100.28	101.50	1.22	Non-Irrigated
101.50	101.73	0.23	Rangeland/Native
101.73	102.35	0.62	Non-Irrigated
102.35	109.21	6.85	Rangeland/Native
109.21	109.54	0.33	Non-Irrigated
109.54	109.57	0.03	Agriculture
109.57	109.65	0.08	Right of Way

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
109.65	112.14	2.49	Non-Irrigated
112.14	112.19	0.05	Agriculture
112.19	112.35	0.15	Riparian
112.35	112.62	0.27	Non-Irrigated
112.62	112.73	0.11	Riparian
112.73	120.08	7.34	Non-Irrigated
120.08	120.10	0.03	Riparian
120.10	120.93	0.82	Non-Irrigated
120.93	121.07	0.14	Agriculture
121.07	121.37	0.30	Non-Irrigated
121.37	122.57	1.20	Rangeland/Native
122.57	123.70	1.13	Non-Irrigated
123.70	123.75	0.05	Rangeland/Native
123.75	124.31	0.56	Non-Irrigated
124.31	124.57	0.26	Rangeland/Native
124.57	126.97	2.39	Non-Irrigated
126.97	126.99	0.02	Riparian
126.99	127.31	0.32	Non-Irrigated
127.31	127.45	0.14	Riparian
127.45	127.57	0.12	Rangeland/Native
127.57	128.00	0.43	Non-Irrigated
128.00	128.34	0.34	Rangeland/Native
128.34	129.58	1.24	Non-Irrigated
129.58	130.08	0.49	Agriculture
130.08	130.38	0.30	Non-Irrigated
130.38	130.41	0.03	Riparian
130.41	131.33	0.91	Non-Irrigated
131.33	134.25	2.92	Rangeland/Native
134.25	137.44	3.19	Non-Irrigated
137.44	137.49	0.05	Agriculture
137.49	137.51	0.02	Riparian
137.51	137.53	0.02	Agriculture
137.53	137.56	0.04	Riparian
137.56	137.68	0.12	Agriculture

Appendix H-3 Land Use Categories Crossed By Alternative 4			
Mile Post Begin	**Mile Post End**	**Distance (Miles)**	**Land Use**
137.68	137.81	0.13	Non-Irrigated
137.81	137.83	0.02	Rangeland/Native
137.83	137.89	0.06	Riparian
137.89	137.96	0.08	Rangeland/Native
137.96	138.01	0.05	Riparian
138.01	138.04	0.03	Rangeland/Native
138.04	139.54	1.50	Non-Irrigated
0.00	139.54	139.32	Total

APPENDIX I:
IMPAIRED RIVER SEGMENTS SUMMARY SHEETS

APPENDIX J:
SUMMARY OF SURFACE WATER RESOURCES AND WATER QUALITY

APPENDIX J-1
SUMMARY OF SURFACE WATER IN THE ANALYSIS AREA

Surface Water Body[a]	Number of Crossings[b]			Flow Measured at nearest crossing[c]	Stream Classification[d]	303(d) Status[e]	Water Quality Summary[f]	Percent of Analysis Area Containing SubBasin
	Alt 2	Alt 3	Alt 4					
Upper Missouri-Sun-Smith Basin (HUC 10030102)								
Missouri River	NC	NC	NC	13,100 cfs (2005) Great Falls	B-2	5	Yes	
Black Horse Lake (west finger) 8 acres	1	1	NC	ND	Not classified	NL	No	10.0
Benton Lake	NC	NC	NC	ND	B-3	5	Yes	
Unnamed Lake (22 acres)	NC	1	NC	ND	Not classified	NL	No	
Lake Creek	NC	NC	1	ND	B-3	5	No	
Teton River Basin (HUC 10030205)								
Teton River	1	1	NC	547 cfs (2005) Chouteau	B-3	4A	Yes	18.4
Muddy Creek	NC	NC	NC		B-2	3	Yes	
Marias River Basin (HUC 10030203)								
Unnamed Lake (7 acres)	1	1	NC	ND	Not classified	NL	No	
Unnamed Lake (7.6 acres)	1	1	NC	ND	Not classified	NL	No	
Pondera Coulee	1	1	1	15 cfs (2005) Conrad	B-2	5	No	
Spring Coulee	66.8	62.5	66.8 (Alt 2)	173 cfs (1982) Power	B-2	3	No	54.7
Dry Fork Marias	1	1	1	2,130 cfs (1986) Dupuyer	B-3	1	Yes	
Schultz Coulee	1	NC	1	ND	B-2	NL	No	
Bullhead Creek	1	1	1	ND	B-2	NL	No	
Big Flat Coulee	NC	NC	6	ND	B-2	NL	No	

APPENDIX J-1
SUMMARY OF SURFACE WATER IN THE ANALYSIS AREA

Surface Water Body[a]	Number of Crossings[b]			Flow Measured at nearest crossing[c]	Stream Classification[d]	303(d) Status[e]	Water Quality Summary[f]	Percent of Analysis Area Containing SubBasin
	Alt 2	Alt 3	Alt 4					
Little Flat Coulee	NC	NC	NC	ND	B-2	NL	No	54.7
Hilger Coulee	NC	NC	NC	ND	B-2	NL	No	
Sand Coulee	NC	NC	NC	ND	B-2	NL	No	
Rocky Springs Coulee	NC	NC	NC	ND	B-2	NL	No	
Buckley Coulee	NC	NC	NC	ND	B-2	NL	No	
Marias River[g]	1	1	1	5,160 cfs (2005) Shelby	B-2	2	Yes	
Two Medicine River Basin (HUC 10030201)								0.2
Two Medicine River	NC	NC	NC	ND	B-1	2 & 2A	Yes	
Cut Bank Creek Basin (HUC 10030202)								6.7
Cut Bank Creek	NC	NC	NC	4,060 cfs (2005) Cut Bank	B-2	5	Yes	
Old Maids Coulee	NC	NC	NC	ND	B-1	5 & 2B	Yes	
Spring Creek	NC	NC	NC	ND	B-1	NL	No	
Big Rock Coulee	NC	NC	NC	ND	B-1	NL	No	
Hay Lake (115 acres)	1	NC	1	ND	Not classified	NL	No	
Willow Creek Basin (HUC 10030204)								0.4
None crossed	NC	NC	NC	ND	B-2	2 & 2A	Yes	
Upper Milk River Basin (HUC 10050002)								6.7
Grassy Lake (160 acres)	1	NC	1	ND	Not classified	NL	No	
Red River	1	NC	1	ND	B-1	NL	No	
Red River	1	NC	1	ND	B-1	NL	No	
Red River	1	NC	1	ND	B-1	NL	No	
Unnamed Lake (40 acrea)	NC	1	NC	ND	Not classified	NL	No	
Unnamed Lake (63 acres)	NC	1	NC	ND	Not classified	NL	No	

APPENDIX J-1 SUMMARY OF SURFACE WATER IN THE ANALYSIS AREA								
Surface Water Body[a]	**Number of Crossings[b]**			**Flow Measured at nearest crossing[c]**	**Stream Classification[d]**	**303(d) Status[e]**	**Water Quality Summary[f]**	**Percent of Analysis Area Containing SubBasin**
	Alt 2	**Alt 3**	**Alt 4**					
Total Stream/River Crossings	10	6	17					
Total Pond/Lake Crossings	4	6	2					
Total Crossings	14	12	19					

Notes

Alt = alternative
cfs = cubic feet per second
NA = Not Applicable
NC = No Crossing
ND= No Data
NL= Not Listed on the 303(d) list

[a]This table lists all perennial streams and rivers in the analysis area, as well as, all ponds or lakes greater than 5 acres that would be crossed by one or more alternatives.

[b]Numbers in each column are the number of crossings for each surface water body per alternative.

[c]Flow measured at nearest crossing is from the U.S. Geological data base (USGS 2006). Stream flow measurement shown in this table is typically annual peak flow or near peak flow in cubic feet per second (cfs). Year and location for measurement are noted.

[d] Stream Classification Explanation

- A-CLOSED. Waters classified A-Closed are suitable for drinking, culinary, and food processing purposes after simple disinfection.
- A-1. Waters classified A-1 are suitable for drinking, culinary, and food processing purposes after conventional treatment for removal of naturally present impurities.
- B-1. Waters classified B-1 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- B-2. Waters classified B-2 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- B-3. Waters classified B-3 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.

- C-1. Waters classified C-1 are suitable for bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- C-2. Waters classified C-2 are suitable for bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.
- C-3. Waters classified C-3 are suitable for bathing, swimming and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of these waters is naturally marginal for drinking, culinary and food processing purposes, agriculture, and industrial water supply.

[e] Categorization of Surface Waters for 303(d) Listing

As of 2004, the EPA has requested that states adopt a five-part scheme for categorizing the assessment status of all waters in each state's water quality monitoring and assessment system. These five categories are used as follows:

- Category 1: Waters for which all applicable beneficial uses have been assessed and all uses are determined to be fully supported.
- Category 2: Waters for which available data and/or information indicate that some, but not all, of the beneficial uses are supported.
    - Subcategory 2A: Available data and/or information indicate that some, but not all, of the beneficial uses are supported.
- Category 3: Waters for which there are insufficient data to assess the use support of any applicable beneficial use, so no use support determinations have been made.
- Category 4: Waters where one or more beneficial uses have been assessed as being impaired, fully supporting but threatened, all TMDLs are completed but impaired beneficial uses have not yet achieved fully supporting status, or impaired and TMDLs are not required:
    - Subcategory 4A: All TMDLs needed to rectify all identified threats or impairments have been completed and approved.
    - Subcategory 4B: Waterbodies are on lands where "other pollution control requirements required by local, state, or federal authority" [see 40 CFR 130.7(b)(1)(iii)] are in place, are expected to address all waterbody-pollutant combinations, and attain all water quality standards in a reasonable period of time. These control requirements act "in lieu of" a TMDL, thus no actual TMDLs are required.
    - Subcategory 4C: Identified threats or impairments result from pollution categories such as dewatering or habitat modification and, thus, the calculation of a TMDL is not required.
- Category 5: Waters where one or more applicable beneficial uses have been assessed as being impaired or threatened and a TMDL is required to address the factors causing the impairment or threat.

[f] All available water quality summaries for surface water in the analysis area are provided in Appendix 3.5.

[g] The Marias River is shown as a Category 1 stream on the Draft 2006 DEQ Water Quality Report.

APPENDIX K:
PRIORITY POLLUTANT MONITORING DATA

APPENDIX K-1 CRITERIA POLLUTANT MONITORING DATA PM_{10}, $PM_{2.5}$, SO_2, and CO									
Site	**Year**	**PM_{10}**		**$PM_{2.5}$**		**SO_2**		**CO**	
		Annual Mean ($\mu g/m^3$)	**24-Hour High ($\mu g/m^3$)**	**Annual Mean ($\mu g/m^3$)**	**24-Hour High ($\mu g/m^3$)**	**Annual Mean (ppm)**	**24-Hour High (ppm)**	**Annual Mean (ppm)**	**8-Hour High (ppm)**
Great Falls, Montana									
ID: 300130001 NW Corner 10th Ave and 2nd Street Intersection	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	4.6
	2002	--	--	--	--	--	--	--	3
	2003	--	--	--	--	--	--	--	2.9
	2004	--	--	--	--	--	--	--	3.2
	2005	--	--	--	--	--	--	--	2.0
ID: 300130002 7 Miles NE of Malmstrom AFB	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	5	13	--	--	--	--	--	--
	2005	9	26	--	--	--	--	--	--
ID: 300130009 Fire Station 9th Street and 1st Ave S	1996	19	69	--	--	--	--	--	--
	1997	20	62	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--

APPENDIX K-1 CRITERIA POLLUTANT MONITORING DATA PM_{10}, $PM_{2.5}$, SO_2, and CO									
Site	**Year**	**PM_{10}**		**$PM_{2.5}$**		**SO_2**		**CO**	
		Annual Mean ($\mu g/m^3$)	**24-Hour High ($\mu g/m^3$)**	**Annual Mean ($\mu g/m^3$)**	**24-Hour High ($\mu g/m^3$)**	**Annual Mean (ppm)**	**24-Hour High (ppm)**	**Annual Mean (ppm)**	**8-Hour High (ppm)**
ID: 300131025 Skyway Conoco 700 10th Ave S	1996	--	--	--	--	--	--	--	8.5
	1997	--	--	--	--	--	--	--	7.4
	1998	--	--	--	--	--	--	--	5.3
	1999	--	--	--	--	--	--	--	3.6
	2000	--	--	--	--	--	--	--	4.6
	2001	--	--	--	--	--	--	--	3.9
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--
ID: 300131026 Great Falls HS 3rd South and 17th East	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	7.5	40	--	--	--	--
	2001	--	--	5.4	33	--	--	--	--
	2002	--	--	5.3	19	--	--	--	--
	2003	--	--	7.5	61	--	--	--	--
	2004	--	--	4.5	21	--	--	--	--
	2005	--	--	5.9	20	--	--	--	--
ID: 300132000 MT Refining @ Wire Mill Road	1996	--	--	--	--	0.004	0.021	--	--
	1997	--	--	--	--	0.003	0.016	--	--
	1998	--	--	--	--	0.003	0.012	--	--
	1999	--	--	--	--	0.003	0.012	--	--
	2000	--	--	--	--	0.003	0.009	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--

APPENDIX K-1
CRITERIA POLLUTANT MONITORING DATA
PM_{10}, $PM_{2.5}$, SO_2, and CO

Site	Year	PM_{10}		$PM_{2.5}$		SO_2		CO	
		Annual Mean ($\mu g/m^3$)	24-Hour High ($\mu g/m^3$)	Annual Mean ($\mu g/m^3$)	24-Hour High ($\mu g/m^3$)	Annual Mean (ppm)	24-Hour High (ppm)	Annual Mean (ppm)	8-Hour High (ppm)
ID: 300132001 1301 27th Ave NE Black Eagle Race Track	1996	--	--	--	--	--	--	--	--
	1997	--	--	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	0.004	0.027	--	--
	2001	--	--	--	--	0.006	0.057	--	--
	2002	--	--	--	--	0.004	0.041	--	--
	2003	--	--	--	--	0.003	0.029	--	--
	2004	--	--	--	--	0.003	0.024	--	--
	2005	--	--	--	--	0.003	0.028	--	--
Browning, Montana									
ID: 300350101 Blackfeet Transit Bldg 34	1996	28	61	--	--	--	--	--	--
	1997	47	135	--	--	--	--	--	--
	1998	36	107	--	--	--	--	--	--
	1999	26	87	--	--	--	--	--	--
	2000	20	130	--	--	--	--	--	--
	2001	22	75	--	--	--	--	--	--
	2002	29	117	--	--	--	--	--	--
	2003	24	190	--	--	--	--	--	--
	2004	15	30	--	--	--	--	--	--
	2005	13	21	--	--	--	--	--	--
ID: 300350102 Blackfeet Industrial Park	1996	11	26	--	--	--	--	--	--
	1997	8	18	--	--	--	--	--	--
	1998	--	--	--	--	--	--	--	--
	1999	--	--	--	--	--	--	--	--
	2000	--	--	--	--	--	--	--	--
	2001	--	--	--	--	--	--	--	--
	2002	--	--	--	--	--	--	--	--
	2003	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--
	2005	--	--	--	--	--	--	--	--

Notes:

PM_{10} Particulate Matter < 10 Microns
$PM_{2.5}$ Particulate Matter < 2.5 Microns
$\mu g/m^3$ micrograms per cubic meter
ppm parts per million
Source: EPA 2006a

APPENDIX L:
PHOTOGRAPHIC SIMULATIONS

APPENDIX L

Photographic Simulations

Technical information on the generation of photographic simulations is provided here. Computer Aided Design (CAD), Geographic Information System (GIS), and 3-dimensional (3-D) modeling and design software, Global Positioning Systems (GPS) equipment, a Digital Single Lens Reflex (dSLR) camera, and direct conversations with individuals responsible for transmission line pole design were used to prepare the photograph simulations. Photographs were taken in the field at the defined viewpoint locations and used as backgrounds in the computer generated images. Several 3-D models were constructed of the topography and transmission line poles. Pole placement was performed using GIS software. The computer camera placed the poles in the 3-D model at the appropriate location and the images were generated.

On-site GPS data were obtained using the Pharos GPS Pocket Navigator package for a hand-held Dell Axim 51 PDA. Data recorded included date, time of day, latitude, longitude, elevation, and heading. Heading was verified with a hand-held compass. On-site photographs were acquired using a Canon 350D dSLR (1.6 crop factor) and a Canon 18-55 mm zoom lens. Camera information recorded and verified from photograph EXIF information included: film speed, focal length, aperture, and shutter speed. Photographs were saved as both unprocessed data from the image sensor and in a compressed format.

Montana Digital Elevation Model (DEM) data were obtained from the National Elevation Dataset (NED) as of April 2002 for each of the viewpoints. The data used included 30-meter X-Y resolution and one foot resolution in the Z-plane. Horizontal datum is North American Datum of 1927 (NAD27) with a transverse mercator projection, and National Geodetic Vertical Datum (NGVD) 1929 vertical datum.

The proposed transmission line route was presented in the MFSA application (MATL 2006b). The transmission line map datum was converted to NAD27, so that the line could be exported and then re-imported into the 3-D modeling software and aligned with the NAD27 based DEMs. Transmission line and proposed pole specifications and details were obtained from SNC-Lavalin ATP Inc. (2006). Scaled 3-D models were constructed for each of the proposed power pole types and placed into the 3-D model along the proposed transmission line alignment using specified or recommended span distances between poles. Typical conductor and ground cable sag specifications were used unless otherwise specified by SNC-Lavalin.

For each simulation, the photograph taken in the field was imported into the 3-D modeling software package and loaded as a background environment within which the view of the 3-D model is generated. To generate the correct view relative to the actual photograph, a software camera was placed at a location identical to where the photograph was taken relating the field location to the DEM location. Using the JEEEP.com coordinate translation applet, GPS recorded camera locations were converted to Universal Transverse Projection (UTM) northing and easting locations to facilitate placement of the software camera.

APPENDIX M:
MATL SYSTEM IMPACT STUDY STAND-ALONE AND CO-EXISTING (NOT YET AVAILABLE)

500 copies of this public document were published at an estimated cost of $33.27 per copy, for a total cost of $16,635, which includes $14,585 for printing and $2,050 for distribution.

DOE/EIS-0399

Federal Draft Environmental Impact Statement

and

State of Montana Supplemental Draft Environmental Impact Statement

for the

Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line

VOLUME 2 – Responses to Comments

February 2008

United States
Department of Energy

State of Montana
Department of Environmental Quality

COVER SHEET

Responsible Agencies: U.S. Department of Energy (DOE) and Montana Department of Environmental Quality (DEQ) are co-lead agencies; the Bureau of Land Management (BLM), U.S. Department of the Interior, is a cooperating agency.

Title: Federal Draft Environmental Impact Statement and State of Montana Supplemental Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. (MATL) 230-kV Transmission Line (DOE/EIS-0399)

Location: Cascade, Teton, Chouteau, Pondera, Toole, and Glacier Counties, Montana.

Contacts: *For further information about this Federal Draft EIS, contact:* Ellen Russell, Project Manager, Office of Electricity Delivery and Energy Reliability, U.S. Department of Energy, Washington, D.C. 20585, (202) 586-9624, or Ellen.Russell@hq.doe.gov. *For general information on DOE's National Environmental Policy Act (NEPA) process, contact:*
Carol Borgstrom, Director, Office of NEPA Policy and Compliance, at the above address, (202) 586-4600, or leave a message at (800) 472-2756.

For general information on the State of Montana Major Facility Siting Act process, contact: Tom Ring, Environmental Sciences Specialist, Montana Department of Environmental Quality (DEQ), PO Box 200901, Helena, MT 59620-0901, or (406) 444-6785. *For general information on the State of Montana Environmental Policy Act process, contact:* Greg Hallsten, Environmental Science Specialist, at the above address, (406) 444-3276.

Comments: For the convenience of commentors, the Montana DEQ has agreed to receive all comments on this document and to provide them to DOE for consideration. Comments may be submitted to Tom Ring at the above address or via electronic mail at matl@mt.gov.

Abstract: MATL proposes to construct and operate a merchant 230-kV transmission line between Great Falls, Montana, and Lethbridge, Alberta, that would cross the U.S.-Canada border north of Cut Bank, Montana. The transmission line would transmit 300 megawatts (MW) of electric power south and 300 MW north. In order to build and operate the line, MATL must first obtain a Presidential permit from DOE to cross the U.S.-Canada border, a certificate of compliance from the Montana DEQ to construct the line in Montana, and a right-of- way grant from the BLM to cross any BLM-administered lands.

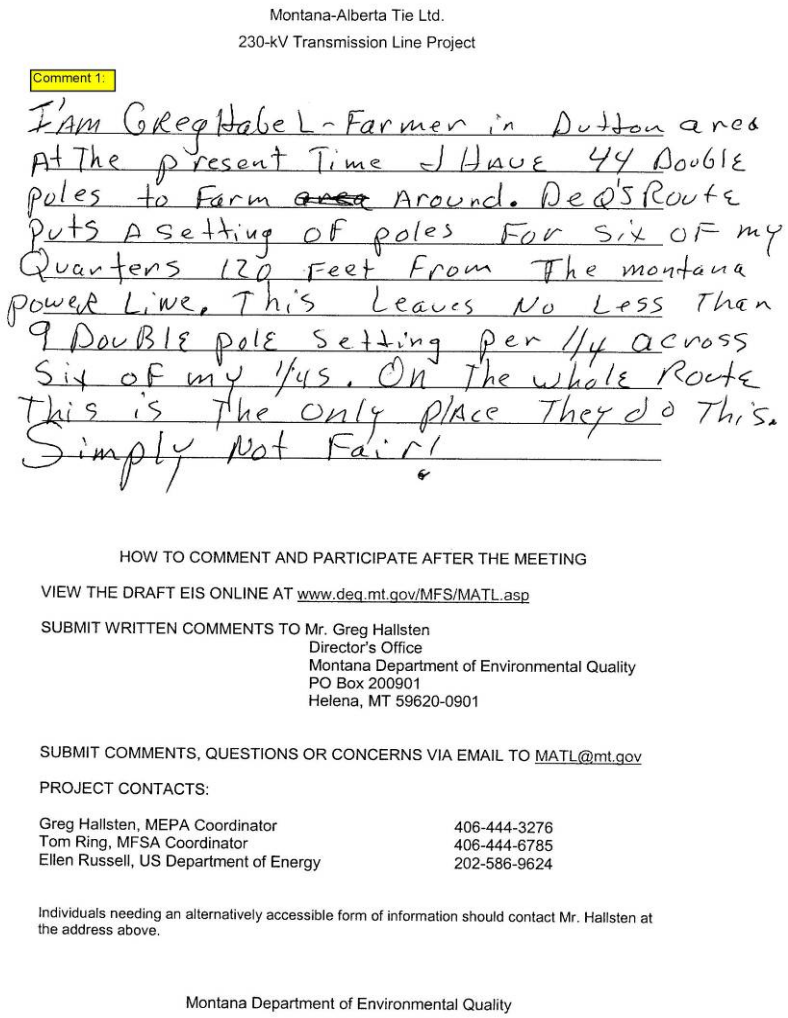
In March 2007, DOE and DEQ prepared a joint document that was a Draft Environmental Assessment for DOE and a Draft EIS for DEQ. Based largely on the public comments received on the March 2007 document, DOE determined that an EIS was the appropriate level of review. For the same reasons, DEQ decided to prepare a supplement to its Draft EIS. The Notice of Intent to prepare this Federal Draft EIS was published on June 7, 2007 (72 FR 31569).

This EIS analyzes the "No Action" alternative, three alternative transmission line alignments, and 11 local routing options. This EIS will be used by DOE, DEQ, and BLM to ensure that they have the environmental information needed to render informed decisions.

Comment Period: The agencies will prepare a Final EIS after considering all comments received or postmarked during the 45-day public comment period that will begin when the U.S. Environmental Protection Agency publishes a Notice of Availability of this Draft EIS in the *Federal Register*. The agencies will consider late comments to the extent practicable. Locations and times for public hearings will be announced in the *Federal Register* as well as in local media. The Draft EIS will be available on DOE's NEPA website at www.eh.doe.gov/nepa/documentspub.html.

INTRODUCTION

In this section the agencies present responses to comments received on the Draft EIS/EA issued in March 2007. Responses to written comments submitted at the public hearings and written comments that were received by mail or e-mail are presented first. Responses to oral comments received at the public hearings that differed from the written comments are presented at the end of this section. Readers will find the written comments reproduced in their entirety with a response to the comment presented to the side. Oral comments are summarized and responded to.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Comment 1:

I Am Greg Habel - Farmer in Dutton area At The present Time I Have 44 Double poles to Farm ~~area~~ Around. DEQ's Route puts A setting of poles For six of my Quarters 120 Feet From The montana power Line. This Leaves No Less Than 9 Double pole Setting per 1/4 across Six of my 1/4s. On The whole Route This is The Only place They do This. Simply Not Fair!

HOW TO COMMENT AND PARTICIPATE AFTER THE MEETING

VIEW THE DRAFT EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

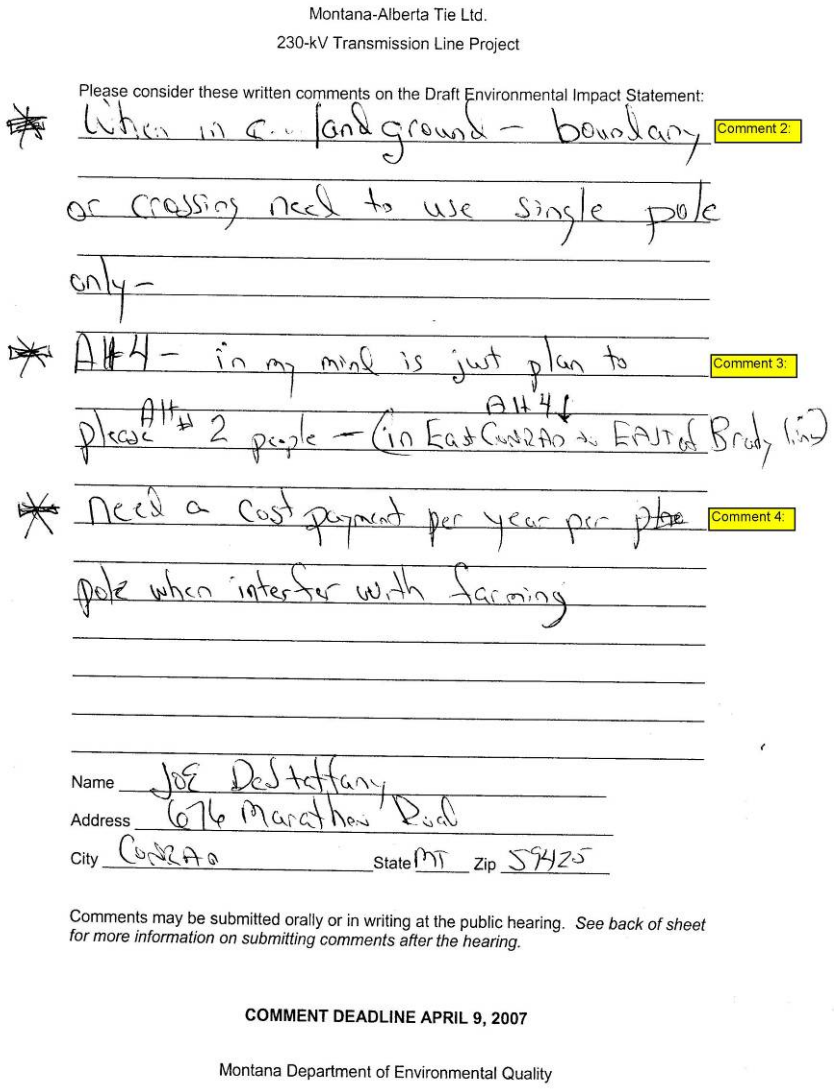
PROJECT CONTACTS:

Greg Hallsten, MEPA Coordinator	406-444-3276
Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

Montana Department of Environmental Quality

Response 1: After reviewing this matter further with Mr. Habel and meeting with area landowners, the agencies are presenting three possible local routing options in the Diamond Valley area for public comment. One of these locations or portions of a combination of these could be required by the agencies to reduce impacts. See Sections 2.6 and 3.16 for more information.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

* When in C... land ground – boundary Comment 2:
or crossing need to use single pole
only –

* AH4 – in my mind is just plan to Comment 3:
please AH# 2 people – (in East Conrad to EAST of Brady line) AH4

* need a cost payment per year per ~~pole~~ Comment 4:
pole when interfer with farming

Name Joe DeStaffany
Address 676 Marathon Road
City Conrad State MT Zip 59425

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

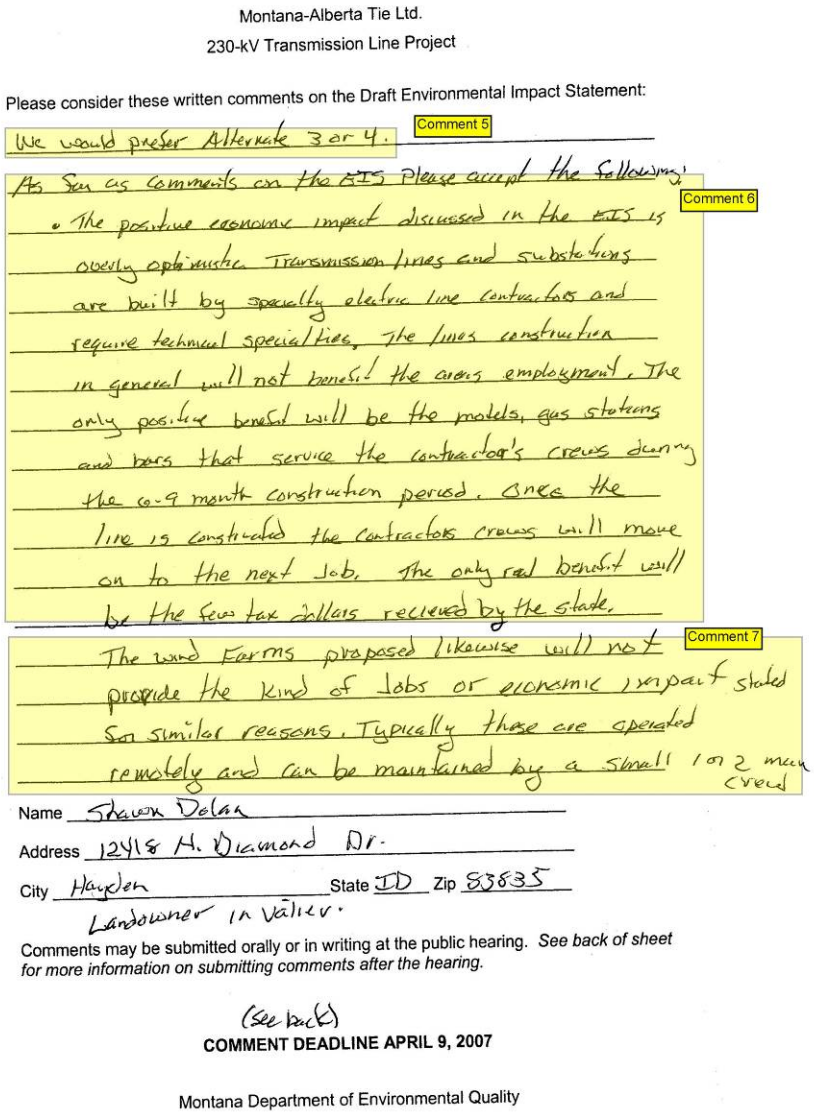
COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

Response 2: Comment noted. Thank you for your comment. In response to comments, on July 30, 2007 MATL indicated that they would use long span mono pole construction for 53 miles of line that would cross cultivated lands diagonally that were identified in the Draft EIS along Alternative 2. Alternative 2 would not include single poles on the other 38.4 miles of cropland and CRP land crossed.

Response 3: Comment noted. Thank you for your comment.

Response 4: Comment noted. The cost payments are negotiated between MATL and the land owner. The agencies are not involved in those negotiations. The agencies have estimated a cost to farmers per pole per year from the line. See Section 3.13 for additional information.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

We would prefer Alternate 3 or 4. Comment 5

As far as comments on the EIS Please accept the following:

- The positive economic impact discussed in the EIS is overly optimistic. Transmission lines and substations are built by specialty electric line contractors and require technical specialties. The lines construction in general will not benefit the areas employment. The only positive benefit will be the motels, gas stations and bars that service the contractor's crews during the 6-9 month construction period. Once the line is constructed the contractors crews will move on to the next job. The only real benefit will be the few tax dollars recieved by the state. Comment 6

The wind Farms proposed likewise will not provide the kind of jobs or economic impact stated for similar reasons. Typically these are operated remotely and can be maintained by a small 1 or 2 man crew. Comment 7

Name Sharon Dolan

Address 12418 N. Diamond Dr.

City Hayden State ID Zip 83835

Landowner in Valley.

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

(See back)

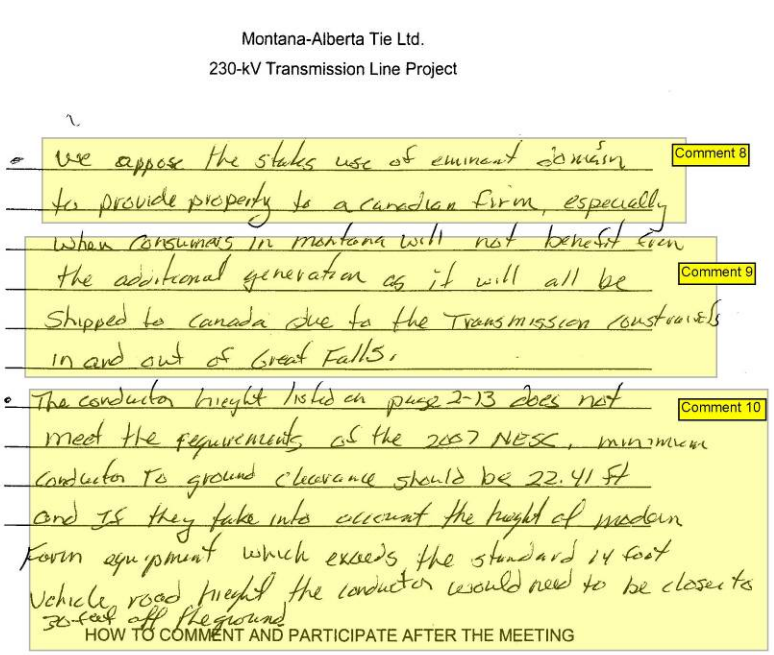
COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

Response 5: Comment noted. Thank you for your comment.

Response 6: The beneficial impacts from this project are described as "small and short term" to the local area in Section 3.13.3.2. The income, job, and secondary benefits were estimated with the best information available, and it is understood that many of these jobs would go to out-of-state residents. Also, some benefits would be felt outside the study area by customers of the line.

Response 7: Comment noted. Information for wind farms economics was taken from the best available information, and is an estimate only. It is acknowledged in the draft EIS that the number of permanent jobs as a result of wind farms would be low. Please refer to Section 4 which contains information on the potential impacts of wind farms.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

- We oppose the states use of eminent domain to provide property to a canadian firm, especially when consumers in montana will not benefit from the additional generation as it will all be shipped to canada due to the transmission constraints in and out of Great Falls. (Comment 8, Comment 9)
- The conductor height listed on page 2-13 does not meet the requirements of the 2007 NESC, minimum conductor to ground clearance should be 22.41 ft and if they take into account the height of modern farm equipment which exceeds the standard 14 foot vehicle road height the conductor would need to be closer to 30-feet off the ground (Comment 10)

HOW TO COMMENT AND PARTICIPATE AFTER THE MEETING

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SUBMIT WRITTEN COMMENTS TO Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
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Montana Department of Environmental Quality

Response 8: While the Major Facility Siting Act provides the procedure for obtaining approval to construct a major facility, including electric transmission lines, it does not provide a procedure for acquiring property on which to construct the facility. The property must be obtained through negotiations between a project sponsor and a landowner or if negotiations are not successful, a condemnation proceeding under the laws of eminent domain may be used.

Eminent domain may only be exercised if the purpose for which it is being exercised is a public use. Those public uses are identified and listed by the Legislature in Section 70-30-102, MCA. Subsection 37 of that statute lists electrical power lines as a public use. Section 70-30-102, MCA, does not distinguish between electrical power lines built by private enterprise and a publicly owned utility.

Before private property can be taken, Section 70-30-111, MCA, requires the condemner to demonstrate that the public interest requires the taking based on the following findings:

1. the use to which the property is to be applied is a use authorized by law;

2. the taking is necessary to the use;

3. if already being used for a public use, that the public use for which the property is proposed to be used is a more necessary public use; and

4. an effort to obtain the property interest sought to be taken was made by submission of a written offer and the offer was rejected.

As indicated above, an electric transmission line is a use for which condemnation is authorized by law. In regard to whether the taking is necessary, Montana courts have determined that the necessity need not be absolute or indispensable. Rather, a taking is necessary if it "is reasonable, requisite, and proper for the accomplishment of the end in view, under the particular circumstances of the case." As indicated in Section 3.17, DEQ has determined the necessity of the electric transmission line proposed by MATL.

As indicated in the handbook entitled Eminent Domain in Montana published by the Legislative Environmental Policy Office in May of 2001, "[a] public use does not have to be a project that directly benefits the entire public or even the landowner whose property is taken through eminent domain. It may be a project that benefits Montana citizens as a whole through greater economic development or increased access to communications." As stated by the Montana Supreme Court in Ellinghouse v. Taylor (1897), 19 Mont. 462, 48 P. 757, "Persons have been allowed the right of eminent domain on the theory of public use, in the construction of dams for the operation of grist and saw mills, in the reclamation of swamp lands, and in other similar instances that might be enumerated where the public had no direct interest in these operations, whose main end was mere private gain, and where the benefit to the people at large could result indirectly and incidentally only from the increase of wealth and development of natural resources."

Response 9: Table 4.1-2 lists the four instances where MATL and shippers have reached agreements. As can be seen from the revised table, bids have been accepted by MATL for 300 MW to be shipped from north to south and 300 MW south to north. The line should be capable of shipping electricity both north into Canada and south into Montana. Whether these shippers have secured agreements to move power south beyond Great Falls is not known. The benefits of MATL to Montana are discussed in Section 1.2 and Section 3.13. Potential impacts to Montana customers are discussed in Section 3.13.

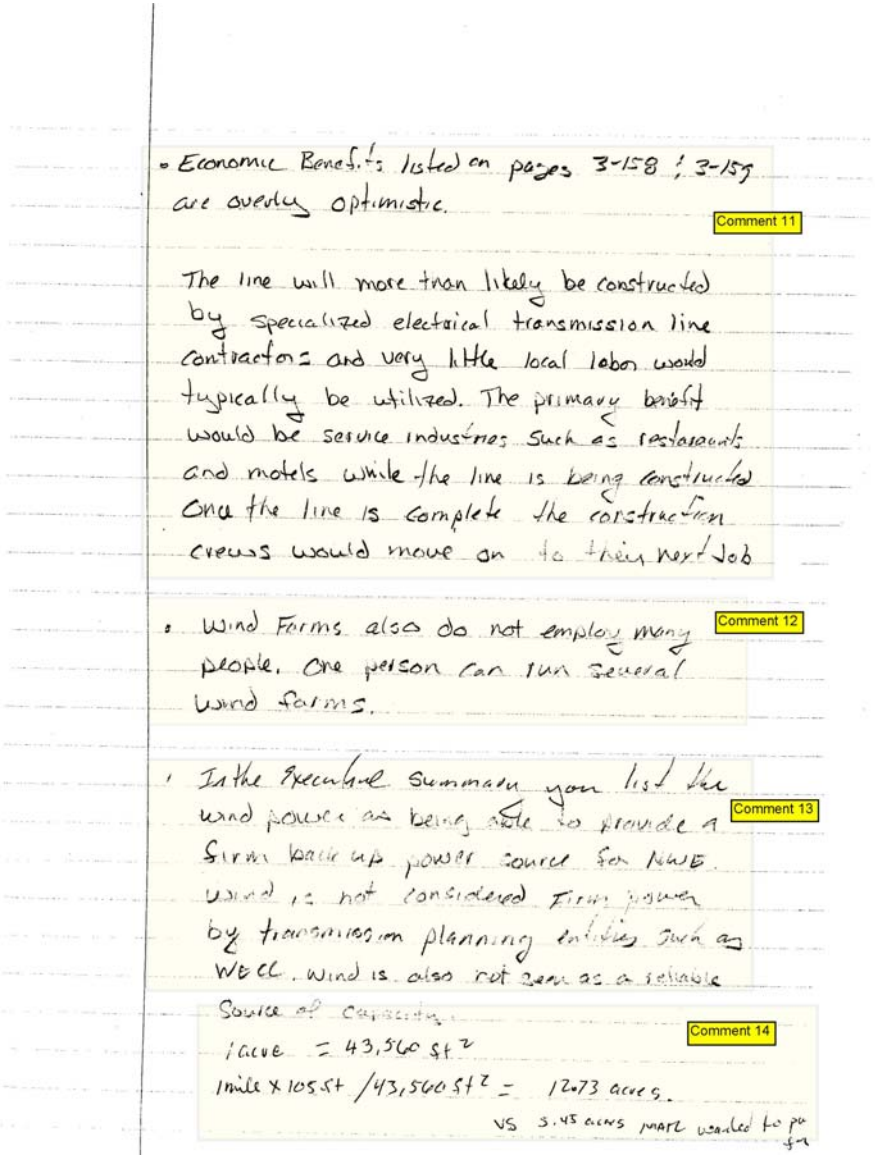
Response 10: The agencies contracted with an independent engineer (HDR, Billings) to examine this issue more carefully. He reported that the general National Electric Safety Code (NESC) rule 232 (C) and table 232-1 are used to calculate the minimum ground clearances for different voltages. Assuming an elevation of 4500 feet, the calculation is as follows:

Table 232-1 Basic Clearance	18.50 feet
Adder for voltage above 22 kV	3.91 feet
Adder for voltage above 3,300 feet - 3.6percent	0.14 feet
22.55 feet	
Applying the NESC rounding rule	22.60 feet

An alternate method, for voltage above 98 kV, can be used to calculate the minimum ground clearance using NESC Rule 232 (D). This is the method used by SNC LAVALIN, the MATL consultant. This calculation is as follows:

Reference height from Table 232-3	14.00 feet
Adder for Electrical Component Table 232-4	7.10 feet
Adder for elevation above 1,500 feet – 9percent	.64 feet
21.74 feet	
Applying the NESC rounding rule	21.80 feet

These calculated clearance minimums are based on a maximum vehicle height of 14 feet. As has been pointed out by several commenters, farming equipment often exceeds this height, but what height is appropriate to use for a design height is debatable. According to HDR "It does seem prudent to design for clearance in excess of the minimum to allow for the increase in heights of vehicular traffic near the transmission line. HDR's experience with our utility clients has always resulted in 230-kV minimum design clearance between 25 feet and 30 feet. Rural Utilities Services (RUS) requires 25 feet of ground clearance in their design manual for 230-kV transmission lines. Another client, Xcel Energy in Minneapolis, MN requires a design clearance of 30 feet for all 230-kV lines and their service area is largely rural farm land similar to the farm land traversed by the MATL transmission line."



- Economic Benefits listed on pages 3-158 & 3-159 are overly optimistic.

Comment 11

The line will more than likely be constructed by specialized electrical transmission line contractors and very little local labor would typically be utilized. The primary benefit would be service industries such as restaurants and motels while the line is being constructed. Once the line is complete the construction crews would move on to their next job.

- Wind Farms also do not employ many people. One person can run several wind farms.

Comment 12

- In the Executive Summary you list the wind power as being able to provide a firm back up power source for NWE. Wind is not considered firm power by transmission planning entities such as WECC. Wind is also not seen as a reliable source of capacity.

Comment 13

1 acre = 43,560 ft²

1 mile x 105 ft / 43,560 ft² = 12.73 acres.

vs 3.45 acres MATL wanted to pay for

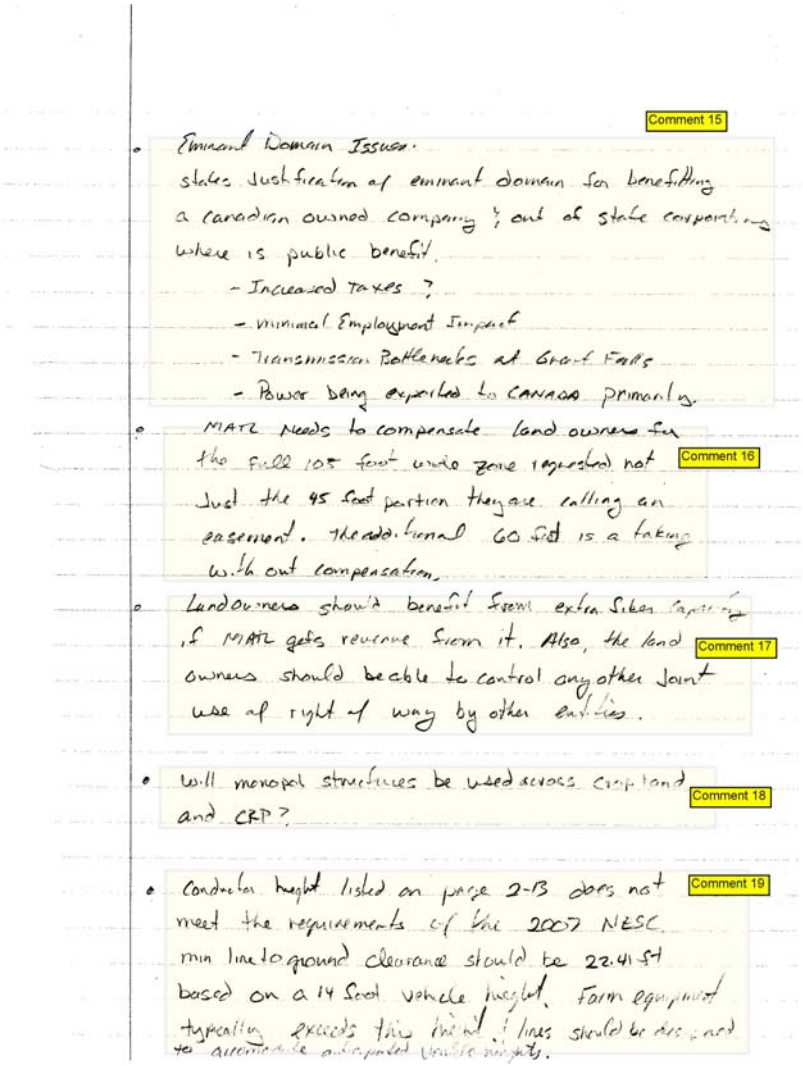
Comment 14

Response 11: See response to comment 6.

Response 12: Your comment is noted; see response to comment 7. In the cumulative impacts section of the draft EIS, only a few permanent jobs are predicted as a result of wind farms.

Response 13: The Executive Summary does not indicate that wind power would provide a firm back-up power source for NorthWestern Energy (NWE). The Executive Summary states: "The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NWE, to obtain regulating reserves for its transmission system control area." This statement does not indicate that wind generation would be the source of regulating reserves. Other sources may be available from Canada, outside NWE's control area.

Response 14: Comment noted. The agencies understand that MATL proposes to pay for an easement 45 feet wide.



Response 15: See response to comment 8.

Response 16: Comment noted. Thank you for your comment.

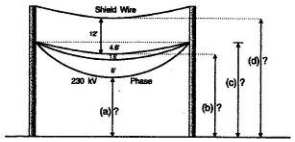
Response 17: Comment noted. Thank you for your comment.

Response 18: The use of monopoles varies by alternative. See chapter 2 for more details.

Response 19: See response to comment 10.

Clearances 232 — From 2007 NESC Clearance Calculations, Answers

7. Ruff Woods is a forest along Highway 1. **What vertical clearance is required** for a phase conductor of a 19.9/34.5kV effectively grounded wye line running along the highway and: a. within the highway R/W? b. on private R/W?	Comment 19 (Continued) **18.5'-Category 9—See Table 232-1, Column 4** **18.5'-Category 4**
8. What clearance above a roadway is required for a span of 230kV conductors?	**[230kV/1.732=132.79] = *nominal* phase-to-neutral voltage.** **[132.79 x 1.05=139.4kV] = *maximum operating* voltage.** **[139.4-22=117.4kV] = kV above 22kV-to-ground** **[117kV x 0.4"/kV=46.96"] = 4' voltage adder 18.5' + 4' = 22.5'.**
9. Now assume that a 230kV line in the Light Loading District has a maximum design temperature of 156 deg F. We know that the conductor will change in sag with time and with temperature. Assume that the sag change from initial unloaded sag of 4.6 feet at 60 deg F down to final unloaded sag at 60 deg F is 1.5 feet. When the conductor temperature increases to 156 deg F, the conductor sags a further 6 feet lower, i.e., the sag at 156 deg F is 4.6 + 1.5 + 6 = 12.1 feet.	**a. The basic clearance at closest approach is 18.5 feet. To this must be added the voltage adder of 4 feet (as calculated in Answer 8). This gives us 22.5' as the lowest conductor position allowed above the road under any circumstances.**
a. What is the least clearance allowed above the road during maximum sag conditions?	**b. Add the difference between worst case sag and initial stringing sag (7.5') to the required clearance (22.5') to get the required height above the road at initial installation of 30 feet.**
b. If you originally install the conductor at 60 degrees F initial sag, **how high above the roadway must it be** to meet the vertical clearance requirements?	
c. How high is the line of sight between the 230 kV conductor attachments above the road?	**c. Add the initial sag of 4.6 feet to get the height of the LOS above the roadway of 34.6 feet.**
Now assume that our 230kV conductor is initially installed 12 feet below the level of an overhead shield (static) surge protection wire.	
d. **What is the height of that shield wire above the roadway** at initial installation?	**d. 30' + 12' = 42'**



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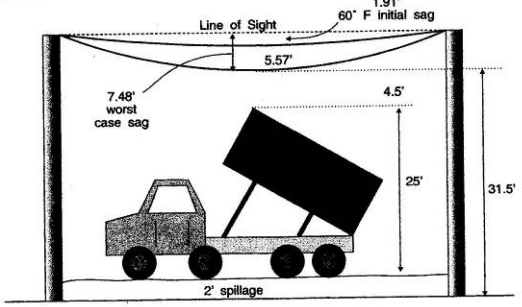
Clearance Development — Answers

Segment 6: Clearance Development Answers

Comment 19 (Continued)

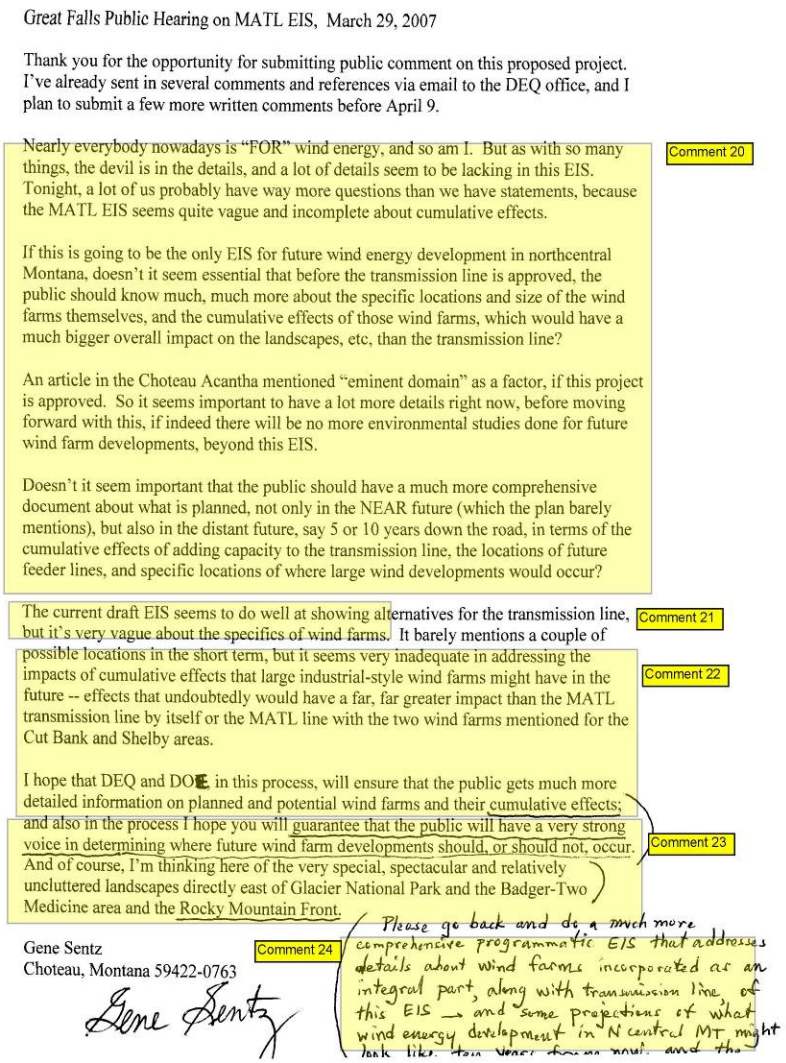
There are two ways to consider this problem:

METHOD 1		METHOD 2	
25.0'	Truck Height	18.5'	Normal Road Clearance
-14.0'	Included in Code Clearance (See Appendix A, Table A2)	-14.0'	Reference Height for a Truck
11.0'	Needed Extra Above Table Value	4.5'	Over the Reference Height
+2.0'	Planned Road Elevation Change	+25.0'	Actual Truck Height (See Appendix A, Table A1)
13.0'	Total Extra Needed @ Worst Case Condition	+2.0'	Planned Road Elevation Change
+18.5'	Table Value		
=31.5'	Total Needed @ Worst Case Condition	=31.5'	



METHOD A		METHOD B	
Worst case total final sag @ 32 degrees F with 1/2" radial ice	7.48'	Worst case total final sag @ 32 degrees F with 1/2" radial ice	7.48'
Less Initial Sag @ 60 degrees F	-1.91'	Plus required "not-less-than" clearance	+31.50'
= Sag change from 60 degrees F initial to 32 degrees F final with ice	=5.57'	= Required Line-of-Sight (LOS) between conductor attachment points	=38.98'
Plus required "not-less-than" clearance	+31.50'	Less Initial Sag @ 60 degrees F	-1.91'
= Required clearance at 60 degrees F initial sag	=37.07'	= Required clearance at 60 degrees F initial sag	=37.07'

This text is for illustrative purposes only. Refer to the actual wording of the 2002 NESC.
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Great Falls Public Hearing on MATL EIS, March 29, 2007

Thank you for the opportunity for submitting public comment on this proposed project. I've already sent in several comments and references via email to the DEQ office, and I plan to submit a few more written comments before April 9.

Nearly everybody nowadays is "FOR" wind energy, and so am I. But as with so many things, the devil is in the details, and a lot of details seem to be lacking in this EIS. Tonight, a lot of us probably have way more questions than we have statements, because the MATL EIS seems quite vague and incomplete about cumulative effects. Comment 20

If this is going to be the only EIS for future wind energy development in northcentral Montana, doesn't it seem essential that before the transmission line is approved, the public should know much, much more about the specific locations and size of the wind farms themselves, and the cumulative effects of those wind farms, which would have a much bigger overall impact on the landscapes, etc, than the transmission line?

An article in the Choteau Acantha mentioned "eminent domain" as a factor, if this project is approved. So it seems important to have a lot more details right now, before moving forward with this, if indeed there will be no more environmental studies done for future wind farm developments, beyond this EIS.

Doesn't it seem important that the public should have a much more comprehensive document about what is planned, not only in the NEAR future (which the plan barely mentions), but also in the distant future, say 5 or 10 years down the road, in terms of the cumulative effects of adding capacity to the transmission line, the locations of future feeder lines, and specific locations of where large wind developments would occur?

The current draft EIS seems to do well at showing alternatives for the transmission line, but it's very vague about the specifics of wind farms. Comment 21 It barely mentions a couple of possible locations in the short term, but it seems very inadequate in addressing the impacts of cumulative effects that large industrial-style wind farms might have in the future -- effects that undoubtedly would have a far, far greater impact than the MATL transmission line by itself or the MATL line with the two wind farms mentioned for the Cut Bank and Shelby areas. Comment 22

I hope that DEQ and DOE in this process, will ensure that the public gets much more detailed information on planned and potential wind farms and their cumulative effects; and also in the process I hope you will guarantee that the public will have a very strong voice in determining where future wind farm developments should, or should not, occur. Comment 23 And of course, I'm thinking here of the very special, spectacular and relatively uncluttered landscapes directly east of Glacier National Park and the Badger-Two Medicine area and the Rocky Mountain Front.

Gene Sentz
Choteau, Montana 59422-0763 Comment 24

Gene Sentz

Please go back and do a much more comprehensive programmatic EIS that addresses details about wind farms incorporated as an integral part, along with transmission line, of this EIS — and some projections of what wind energy development in N central MT might look like. [illegible]

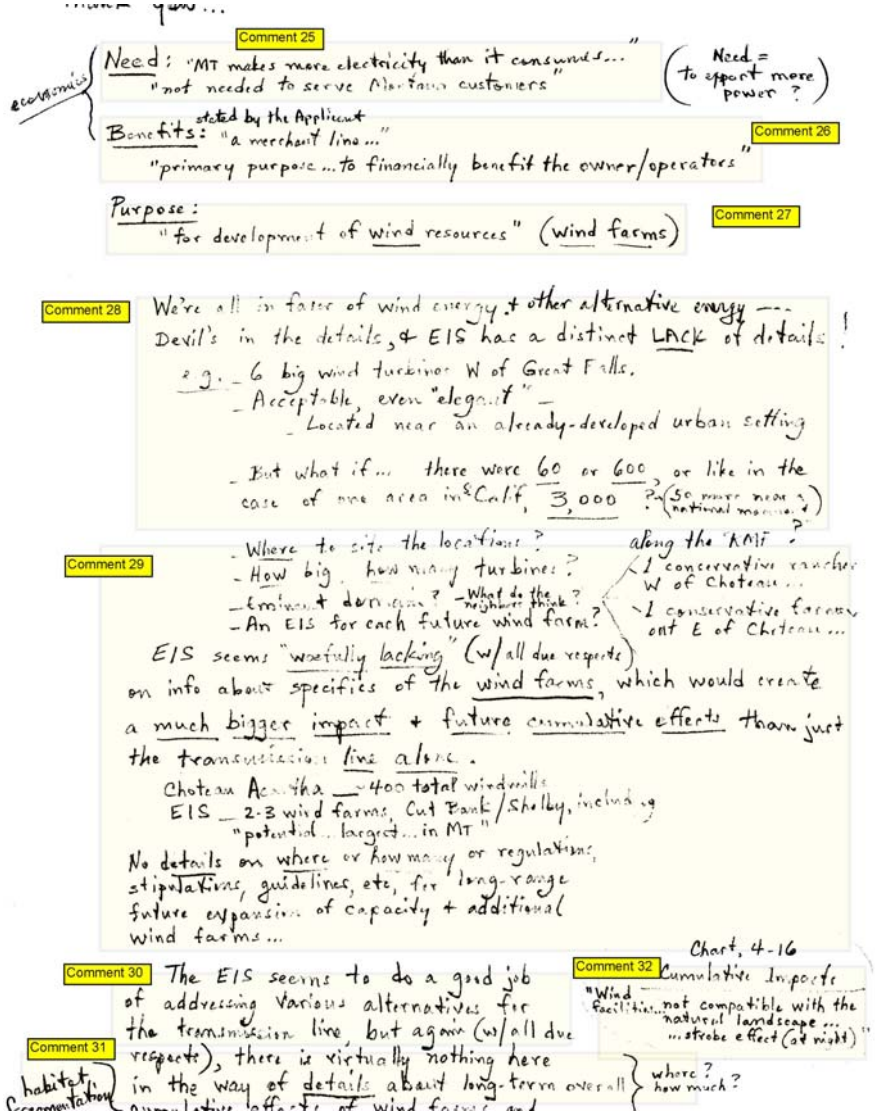
Response 20: The Montana Environmental Policy Act and the National Environmental Policy Act require state and federal agencies to analyze the potential impacts of their actions on the human environment. The proposed actions are the issuance of a certificate of compliance for the transmission line by DEQ, under the Major Facility Siting Act, and issuance of a Presidential permit by DOE. The agencies have no regulatory authority over wind farms, and none has applied for permits administered by the agencies. The potential impacts of wind farms that might be connected to the transmission line in the future are discussed in Chapter 4, as far as available information allows. Individual taller wind turbines would be more visible than the individual structures for the proposed transmission line. The wind turbines are expected to be clustered in individual wind farms and would not stretch between Great Falls and Lethbridge.

Response 21: Comment noted. See the discussion of wind farm related impacts in Chapter 4.

Response 22: While several firms have contracted for transmission capacity on the MATL line, they have not identified specific locations for their wind farms or wind turbines. Chapter 4 describes potential locations for wind farms in the area, but readers should recognize that locations could change, some project sponsors may choose to locate their projects in other areas, and additional wind farms may be proposed. The agencies do not have regulatory authority over wind farm siting, so they cannot demand information from prospective wind farm developers, nor can the agencies require developers to publicly disclose their plans. The agencies agree that it would be good for developers to be open with the public with regard to their plans.

Response 23: Since 1995 Montana's legislature has decreased the amount of regulatory control over generation facilities under the Montana Major Facility Siting Act. In 2001 the legislature removed the DEQ's authority to regulate the location of most types of generation facilities. DEQ does not have the authority to regulate the location of wind farms under other statutes it administers. Without statutory authority, DEQ cannot guarantee that the public would have a voice in determining where future wind farm developments should or should not be located. The agencies understand that the wind farms would be located on privately owned land.

Response 24: With regard to preparing programmatic EISs, the rules implementing the Montana Environmental Policy Act say, "The agency may also prepare a programmatic review whenever required by statute, whenever a series of actions under the jurisdiction of the agency warrant such an analysis as determined by the agency, or whenever prepared as a joint effort with a federal agency requiring a programmatic review" (ARM 17.4.628(2)). DOE generally completes programmatic environmental reviews when several proposals will have cumulative or synergistic environmental impact upon a region or when proposing a new agency program that would affect the environment. Neither DEQ nor DOE is contemplating a series of actions or creating a new program that will have an impact on the environment. No programmatic review is required for the MATL line.



Response 25: Montana does produce more electricity than it consumes. The need for the MATL line as stated in Section 1.2.1 is "to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists), provide access to potential markets for new and existing power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources." The need for the line is not primarily to export more electricity out of Montana.

Response 26: Comment noted. MATL has proposed a merchant line, one that would provide a service to persons generating or purchasing power. As such, it would benefit generators that would not otherwise have a transmission path to market their product. The line also would benefit MATL financially when it would make a profit on the service it provides. Finally, the line may provide benefits to Montana consumers by providing another transmission path into the state which could help improve the reliability of transmission in Montana through additional redundancy.

Response 27: Comment noted. While the line could facilitate the development of wind resources and other generation facilities, it would be a merchant line and provide another transmission path to and from Montana. When the wind is not blowing or when wind generators are not fully exercising their agreements to transmit power over MATL's line, the proposed line could be available to other generators and power users on a short-term, non-firm basis.

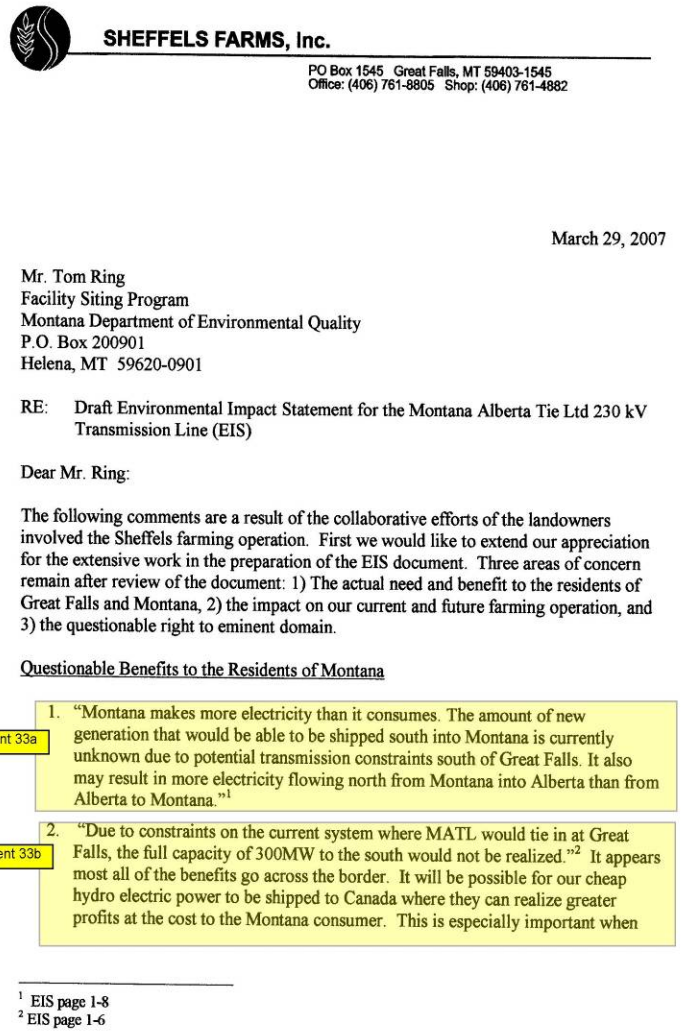
Response 28: The discussion of impacts for the proposed MATL transmission line has been expanded in Chapter 4 for more description of potential visual impacts associated with wind farm development.

Response 29: See response to comment 20. Wind farms are most likely to be located in windy areas, within about 30 to 40 miles of an existing transmission line with available transmission capacity, and where agreements can be negotiated with affected landowners. For the proposed MATL transmission line, an area within 30-40 miles of the line has the highest probability for future wind farm development directly associated with the MATL line due to the cost of interconnecting transmission lines between individual wind farms and the MATL line. Different areas could be developed depending on project economics and availability of the wind resource. Other than the McCormick Ranch Wind Park, which would have about 60 turbines located north of the Marias River between the McCormick and Sullivan Bridge roads, additional details on wind farm locations, number of turbines, and other project-specific information are lacking. This information is not necessary for certification of the transmission line. See also response to comment 28 for more description of potential visual impacts associated with wind farm development along with Section 3.15 and the revised discussion of impacts in Chapter 4.

Response 30: Comment noted. Thank you.

Response 31: See Chapter 4.

Response 32: Comment noted.



SHEFFELS FARMS, Inc.

PO Box 1545 Great Falls, MT 59403-1545
Office: (406) 761-8805 Shop: (406) 761-4882

March 29, 2007

Mr. Tom Ring
Facility Siting Program
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

RE: Draft Environmental Impact Statement for the Montana Alberta Tie Ltd 230 kV Transmission Line (EIS)

Dear Mr. Ring:

The following comments are a result of the collaborative efforts of the landowners involved the Sheffels farming operation. First we would like to extend our appreciation for the extensive work in the preparation of the EIS document. Three areas of concern remain after review of the document: 1) The actual need and benefit to the residents of Great Falls and Montana, 2) the impact on our current and future farming operation, and 3) the questionable right to eminent domain.

Questionable Benefits to the Residents of Montana

Comment 33a

1. "Montana makes more electricity than it consumes. The amount of new generation that would be able to be shipped south into Montana is currently unknown due to potential transmission constraints south of Great Falls. It also may result in more electricity flowing north from Montana into Alberta than from Alberta to Montana."[1]

Comment 33b

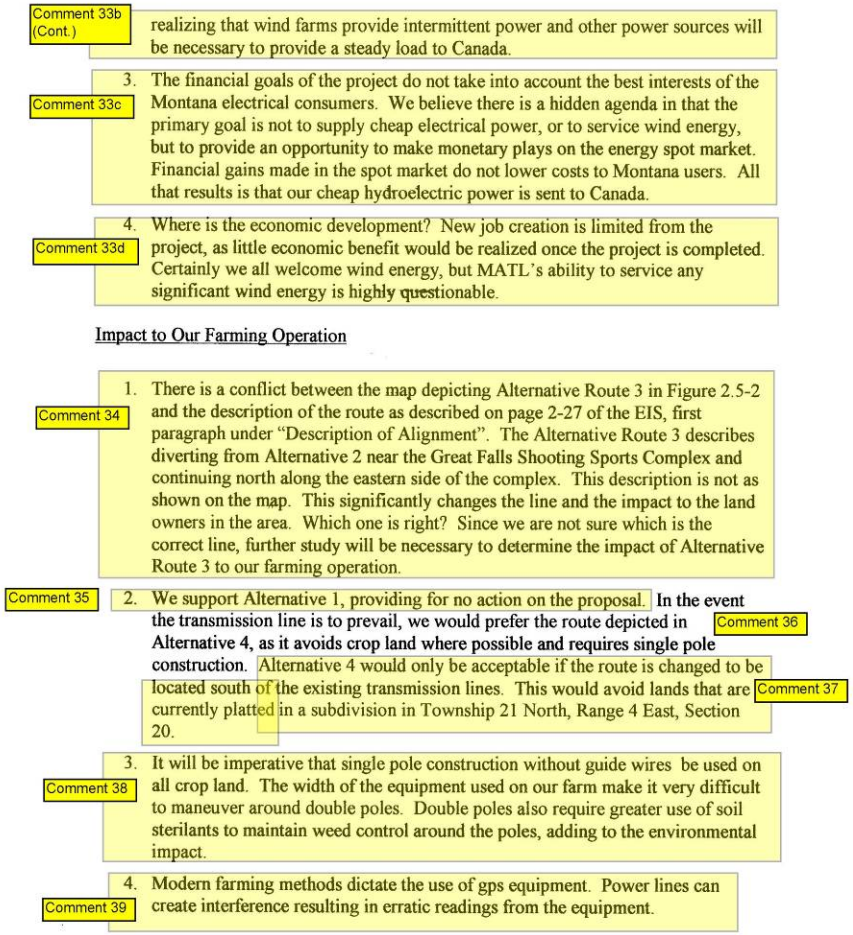
2. "Due to constraints on the current system where MATL would tie in at Great Falls, the full capacity of 300MW to the south would not be realized."[2] It appears most all of the benefits go across the border. It will be possible for our cheap hydro electric power to be shipped to Canada where they can realize greater profits at the cost to the Montana consumer. This is especially important when

[1] EIS page 1-8
[2] EIS page 1-6

Response 33a: Comment noted. See comment 25.

Response 33b-d: Refer to response to comment 25. The primary goal of the line is to connect Montana and Alberta's systems and to allow for the development of wind farms in the Cut Bank area. The benefits of MATL to Montana are discussed in Section 1.2 and Section 3.13. Potential impacts to Montana customers are also discussed in Section 3.13.

Although the purpose of this line is stated to increase transfer capacity and allow for new energy development, the line could be used by utilities and other entities to make purchases and sales on the spot market (short-term non-firm transactions might occur on the spot market when the wind is not blowing or when a wind farm holding a firm contract with MATL is not fully exercising its rights). Such transactions would be limited by the amount of firm and non-firm power left over on the line after the firm contract obligations are met. Electricity prices are higher in Alberta than in Mid-C about 75 percent of the time, so it is possible that some monetary plays could be made on the spot market as a result of this line. (Mid-C means the Mid Columbia trading hub, a commonly used location where electricity prices in the Pacific Northwest are compared) This 75 percent figure comes from a paper entitled "Montana Alberta Tie-Line: What are the Economic Benefits to Alberta?" by Aidan Hollis, Department of Economics, University of Calgary, ahollis@ucalgary.ca. This paper states that "when there is a price difference between two markets, there is generally an economic inefficiency. It means that there are buyers in the lower priced market who would be willing to sell into the higher priced market just below the prevailing higher price, and buyers in the higher-priced market who would be willing to buy at that price. If they were to undertake such a transaction, both parties would benefit. The same applies in electricity markets, and the benefits accrue to



Comment 33b (Cont.) realizing that wind farms provide intermittent power and other power sources will be necessary to provide a steady load to Canada.

Comment 33c 3. The financial goals of the project do not take into account the best interests of the Montana electrical consumers. We believe there is a hidden agenda in that the primary goal is not to supply cheap electrical power, or to service wind energy, but to provide an opportunity to make monetary plays on the energy spot market. Financial gains made in the spot market do not lower costs to Montana users. All that results is that our cheap hydroelectric power is sent to Canada.

Comment 33d 4. Where is the economic development? New job creation is limited from the project, as little economic benefit would be realized once the project is completed. Certainly we all welcome wind energy, but MATL's ability to service any significant wind energy is highly questionable.

Impact to Our Farming Operation

Comment 34 1. There is a conflict between the map depicting Alternative Route 3 in Figure 2.5-2 and the description of the route as described on page 2-27 of the EIS, first paragraph under "Description of Alignment". The Alternative Route 3 describes diverting from Alternative 2 near the Great Falls Shooting Sports Complex and continuing north along the eastern side of the complex. This description is not as shown on the map. This significantly changes the line and the impact to the land owners in the area. Which one is right? Since we are not sure which is the correct line, further study will be necessary to determine the impact of Alternative Route 3 to our farming operation.

Comment 35 2. We support Alternative 1, providing for no action on the proposal. In the event the transmission line is to prevail, we would prefer the route depicted in Comment 36 Alternative 4, as it avoids crop land where possible and requires single pole construction. Alternative 4 would only be acceptable if the route is changed to be located south of the existing transmission lines. This would avoid lands that are Comment 37 currently platted in a subdivision in Township 21 North, Range 4 East, Section 20.

Comment 38 3. It will be imperative that single pole construction without guide wires be used on all crop land. The width of the equipment used on our farm make it very difficult to maneuver around double poles. Double poles also require greater use of soil sterilants to maintain weed control around the poles, adding to the environmental impact.

Comment 39 4. Modern farming methods dictate the use of gps equipment. Power lines can create interference resulting in erratic readings from the equipment.

parties in both jurisdictions, regardless of which one has the higher price." (p. 6). The paper also states on page 7 that "given, as discussed above, the likely increase in prices in Alberta in the near future, it appears that there will continue to be ample scope for imports of Mid-C priced electricity." Page 8 states that "on days when prices are higher in Alberta, we would expect imports into Alberta from Montana, if the MATL tie-line were available." The reason for this is that importing electricity from Montana could make Alberta electricity prices lower on certain days as Alberta could avoid some of its highest cost generation. This same gain from lower prices could happen in Montana when Alberta prices are lower than Montana prices.

However, the amount of Montana-generated electricity that could flow up to Alberta is limited by the relatively small size of the line (300 MW) and would be a small portion compared to the amount of electricity Montana generates each year (about 3,000 aMW) and exports each year (over 1,000 aMW). Much of the time, a large portion of MATL's 300 MW would be used for firm commitments from generators rather than for trading opportunities. The paper also states that both Alberta and Montana could benefit from the MATL line from less of a chance of volatile spot market prices as well as less of a chance of the exercise of market power by electricity suppliers.

Response 34: Thank you for pointing out the mistake. Figure 2.4-2, Alternative 3 Alignment South, is correct. The text in Section 2.4 should have indicated that the alternative would follow the western edge of the Shooting Sports Complex and has been corrected. Figures throughout the draft EIS correctly depict Alternative 3 in this area. Land use categorizations in Appendix H has been corrected by milepost and the summaries of land use categories crossed in

Chapter 3 have been updated. Before rejoining Alternative 2, Alternative 3 would cross about 1.5 miles of crop land owned by the Sheffels families. These crossings would be near the edges of fields or strip farming patterns.

Response 35: Comment noted.

Response 36: Comment noted.

Response 37: Alternative 4 remains on the north side of existing transmission lines along the southern edge of Section 21, Township 21 North, Range 4 East. There are several reasons for this. First, to locate the MATL line on the south side of existing lines the MATL line would have to cross WAPA's existing single pole 230-kV line twice. While not impossible, these crossings are likely to be done with very tall structures in order to maintain adequate clearance between the two lines. Because of the visual sensitivity associated with the Missouri River recreational corridor and conservation easement bordering the Missouri River, the agencies opted to avoid unnecessary visual intrusion in this area. Secondly, as indicated in comment 64, locating the MATL line south of the existing transmission lines in this area would restrict development of a new grain milling business in the northwest ¼ of Section 28, Township 21 North, Range 4 East.

Response 38: Comment noted. Unguyed single pole structures would add costs as indicated below. In addition, the agencies recognize that some agricultural producers would choose to sterilize the soil between the poles of an H-frame structure or between the structure and the guy wire anchors to control weeds. Others would choose to establish a more permanent perennial grass cover that would compete with weedy species.

Both the single pole and three pole structures would be classified into three types: small angle, medium angle, and deadend. The unguyed structures would require large foundations with anchor bolts and much larger steel poles to hold the conductor loads. This results in higher costs for unguyed structures as compared to guyed structures. The following estimates are labor and material cost comparisons per structure for the three types:

Single Pole Structure	Guyed	Unguyed
Small Angle	$15,000.00	$ 35,000.00
Medium Angle	$20,000.00	$ 50,000.00
Deadend	$30,000.00	$100,000.00

Three Pole Structure	Guyed	Unguyed
Small Angle	$30,000.00	$ 50,000.00
Medium Angle	$40,000.00	$ 70,000.00
Deadend	$50,000.00	$120,000.00

Source: HDR 2007

Response 39: Comment noted. See response to comment 599.

Comment 40

In closing, we emphatically do not see the need for additional transmission lines in our area, when the existing lines are not utilized to capacity. We were informed that MATL could use the existing lines, but were reluctant because surcharges would be placed on their use. Further research needs to be done to study the use of the existing lines.

Respectfully submitted,



Jim Sheffels



John Sheffels



Doug Croghan

Response 40: The concept of MATL using existing lines is analyzed in Section 2.7, Alternatives Considered but Dismissed section. Two major transmission systems currently exist in the area. The first is NorthWestern Energy's 115-kV line from Cut Bank to Great Falls built in the 1960s. According to NorthWestern Energy this line has a capacity of about 130MW under the best conditions. The actual amount of MW that the line and interconnected system can handle in any given moment depends on various line limits (thermal limits, system stability, etc). This line already carries electricity and is currently being used for load-serving purposes in the Conrad-Cut Bank area. Thus, this line does not provide the additional capacity offered by the proposed MATL line of 300 or more MW. NorthWestern Energy also operates a 161-kV line from Havre to Great Falls.

The second transmission system in the area is operated by WAPA. It consists of a 230-kV transmission line built in the 1980s between Great Falls and Conrad and between Conrad and Shelby in the 1990s. The capacity of this line under the best conditions is about 240MW. The second related WAPA line in this area is a 115-kV line between Cut Bank and Havre and an interconnected 161-kV line from Havre to Great Falls. The 115-kV line currently has about an 80MW limit and a conductor limit of about 120MW for future expansion. WAPA is considering rebuilding the Havre to Great Falls line and upgrading the line to 230-kV specifications which could give that line about a 240MW capacity. However the line would still be operated at its existing voltage until transformers are upgraded in substations near Great Falls and Havre. All of these WAPA lines already have firm commitments for available capacity and can sometimes run at capacity due to system characteristics. Thus, this system does not provide the additional firm capacity offered by the MATL proposal.

In addition, neither the NorthWestern Energy system nor the WAPA system directly connects to the transmission system in Alberta. Thus, the existing direct transmission capacity between Great Falls and Lethbridge is essentially zero. MATL's line would make it possible for transactions to take place between Alberta and Montana.

Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

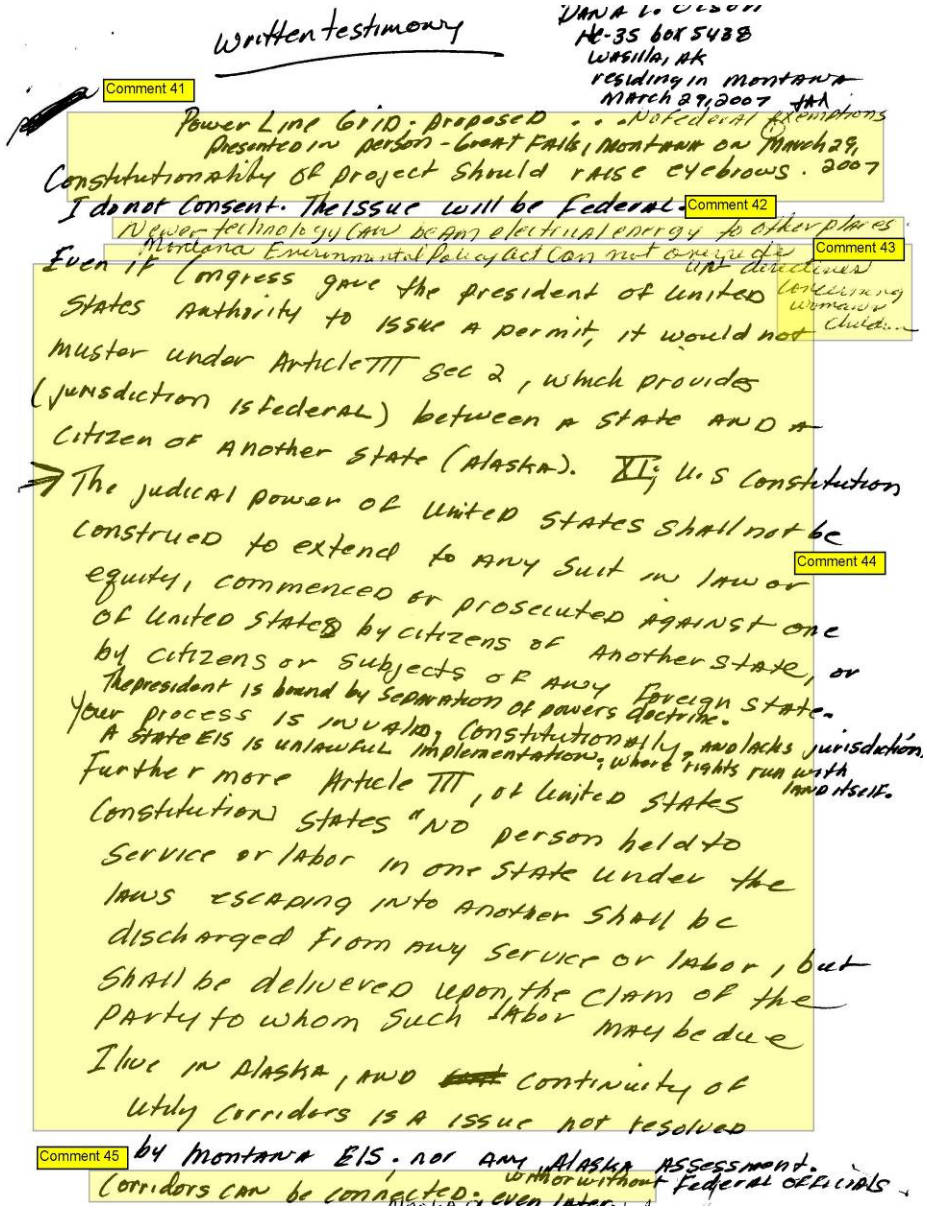
See attached

Name DAVE LOBSON
Address HC 35 Box 5431
City LIVINGSTON State MT Zip 59047
resident in Montana - contact - ultimately

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality



Response 41: Comment noted. See response to comments 44 and 46 in which the commenter cites specific provisions of the U.S. Constitution.

Response 42: The concept of beaming energy has been around since the 1960s. The idea involves converting light to energy with a series of satellite mounted photovoltaic cells or solar collectors based on the moon. Light energy would be converted to electricity and then to microwave radiation. The microwave radiation would be beamed down to a combination rectifier-antenna, called a rectenna, located in an isolated area. The rectenna would convert the microwave energy back to DC (direct current) power. Lasers have also been considered as a way to transmit the energy from space. Such a system might provide electricity at a cost of about 60 to 80 cents per kilowatt-hour using today's technology but costs might come down to 7 to 10 cents per kilowatt-hour in 15 to 20 years. Clearly this is currently not a cost competitive source of power today when many in Montana are paying about 8.83 cents per kilowatt hour.

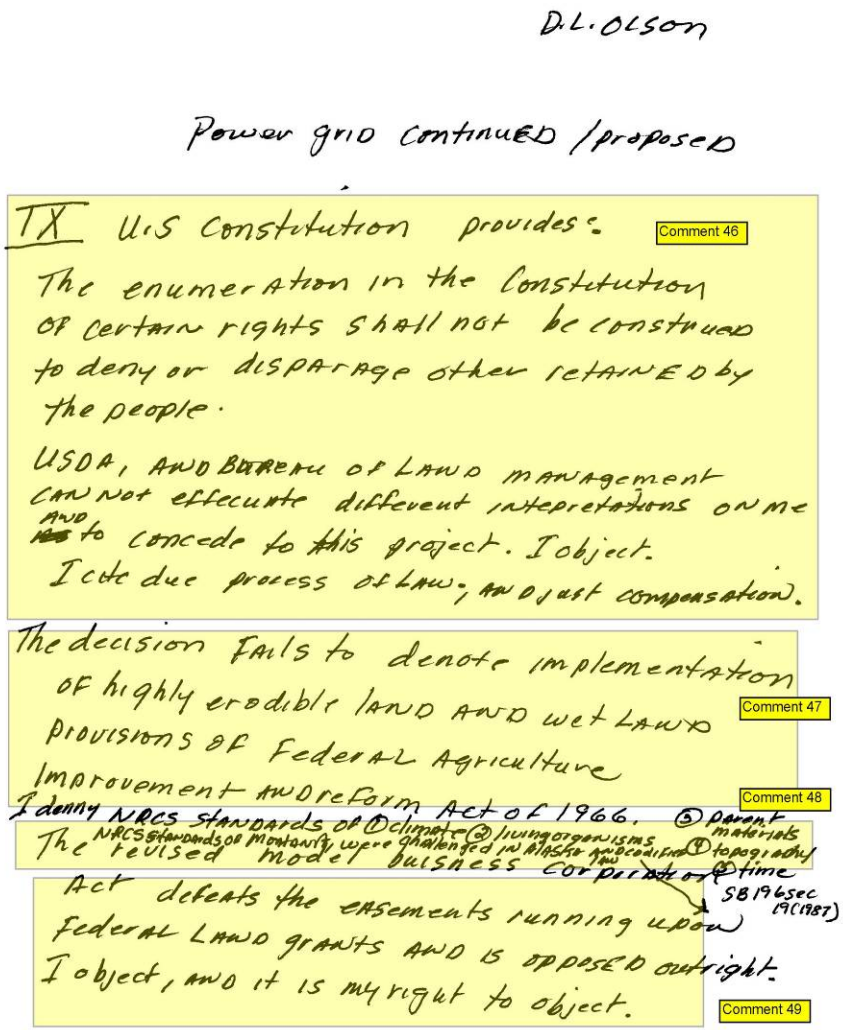
Experimental earth-based methods of beaming electricity have been developed. However, according to the Smithsonian/NASA ADS Astronomy Abstract Service "the best experimentally verified wireless power transmission DC-to-DC efficiencies are 54 percent for a microwave transmission measured over a short distance; the longest range wireless power transmission stands at 1.6 km in 1975 (Brown, 1998; Dickinson, 1975, 2002)." Beaming electricity is not seen as a viable alternative to the proposed transmission line at this time.

Response 43: The agencies are unaware of any United Nations directives concerning women and children that are affected by the agencies' environmental review of the MATL project under the Montana Environmental Policy Act. The agencies are not able to be more specific in its response without a direct reference to a United Nations directive.

Response 44: The commenter mistakenly identifies Article III as stating "no person held to service or labor in one State under the laws escaping into another shall be discharged from any service or labor, but shall be delivered upon the claim of the party to whom such labor may be due." This provision is found in Article IV, Section 3, and was superseded by the adoption of Amendment XIII in 1865 that abolished slavery within the United States. Neither has application to the agencies' consideration of the MATL project.

Article III, Section 2, of the United States Constitution allowed federal courts to accept jurisdiction of legal controversies between a State and a citizen of another State. The United States Supreme Court accepted such jurisdiction of such an action in Chisholm v. Georgia 2 U.S. (2 Dall.) 419 (1793). Congress proposed Amendment XI to the United States Constitution which was ratified in 1798. The sovereign immunity granted States under Amendment XI overturns Chisholm, preventing suits against States by citizens of other States. Neither of the federal jurisdiction provisions of Article III, Section 2, or Amendment XI apply to the agencies' consideration of the MATL Project application.

Response 45: See response to comment 41.


D.L. Olson

Power grid continued / proposed

TX U.S Constitution provides: Comment 46

The enumeration in the Constitution of certain rights shall not be construed to deny or disparage other retained by the people.

USDA, and Bureau of Land management can not effecuate different interpretations on me and to concede to this project. I object. I cite due process of law; and just compensation.

The decision fails to denote implementation of highly erodible land and wet land provisions of Federal Agriculture Improvement and reform Act of 1966. Comment 47

I deny NRCS standards of ① climate ② living organisms ③ parent materials ④ topography ⑤ time Comment 48

The revised model business corporation Act defeats the easements running upon Federal land grants and is opposed outright. I object, and it is my right to object. Comment 49

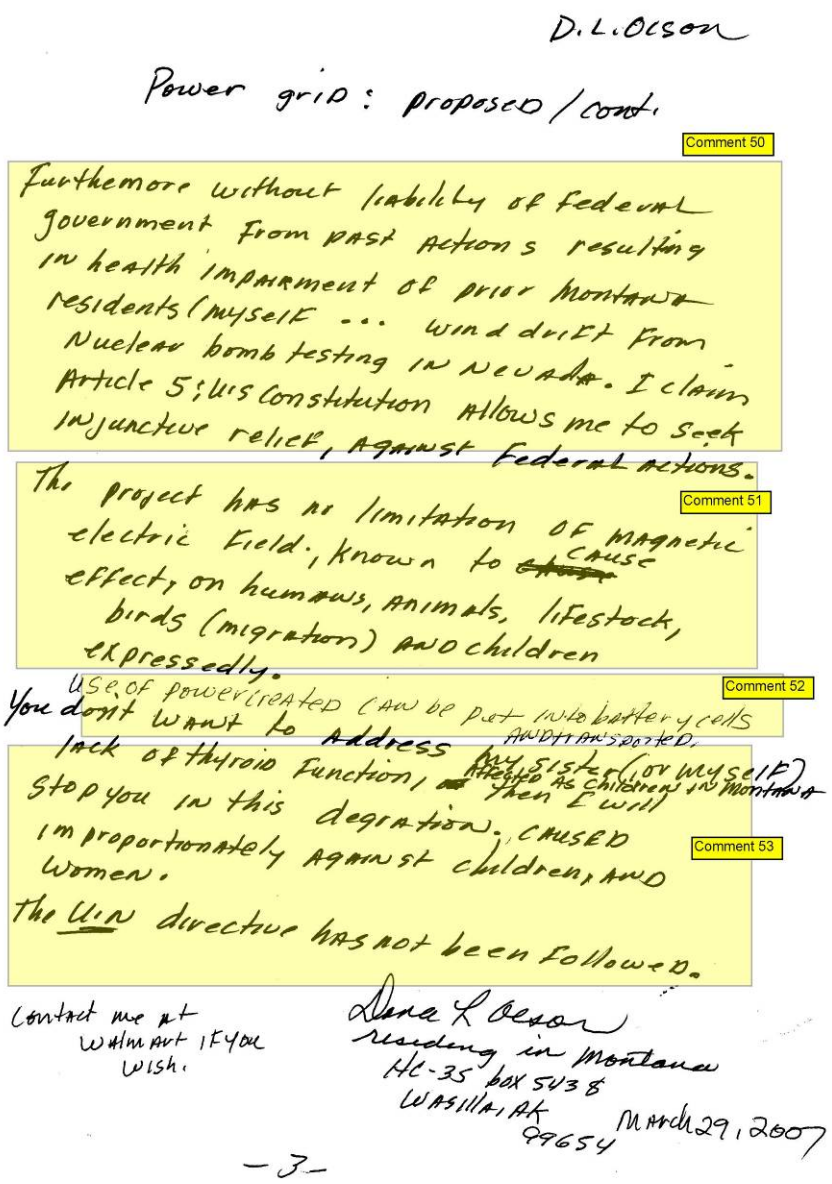
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Response 46: Amendment IX to the United States Constitution addressed a concern that passage of the Bill of Rights would allow government infringement of other fundamental rights that were not expressly included in the Bill of Rights. Courts have relied on Amendment IX as an affirmation of the existence of rights which are not enumerated but which are nonetheless protected by other provisions. The agencies' consideration of the MATL Project does not infringe on any fundamental rights, whether listed in the Bill of Rights or protected by other provisions of the United States Constitution.

Response 47: Comment noted. The Federal Agriculture Improvement and Reform Act of 1966 and as amended provides incentives for property owners to enroll highly erodible land in the Conservation Reserve Program (CRP). The agencies did recognize that certain lands in the study area are currently enrolled in the CRP. However, these enrollments are not believed to be permanent and thus when the contract period is completed these lands may be converted to other uses such as grazing or cropland. Because presence of a transmission line is expected to have greater impacts to crop land than to grazing land, agencies treated CRP land as crop land when analyzing impacts.

Response 48: No decision has been issued at this time. The draft EIS recognized the importance of climate, living organisms, parent material, topography, and time in the development of soils in this area of Montana (see Section 3.2).

Response 49: The Revised Model Business Corporation Act is published by the Committee on Corporate Law of the Section of Corporation, Banking and Business Law of the American Bar Association. Montana has, in large part, adopted this model act in the provisions of Title 35, Montana Code Annotated. None of its business corporation provisions apply to the agencies' consideration of the MATL project.



D.L.Olson

Power grid: proposed / cont.

Comment 50

Furthemore without liability of federal government from past actions resulting in health impairment of prior Montana residents (myself ... wind drift from Nuclear bomb testing in Nevada. I claim Article 5; US Constitution allows me to seek injunctive relief, against federal actions.

Comment 51

The project has no limitation of magnetic electric field; known to cause effects on humans, animals, livestock, birds (migration) and children expressedly.

Comment 52

Use of power created can be put into battery cells and transported.

You don't want to address lack of thyroid function, any sister (or myself) stops as children in Montana then I will stop you in this degration, caused

Comment 53

improportionately against children, and women.

The UN directive has not been followed.

Contact me at Walmart if you wish.

Dana L Olson
residing in Montana
HC-35 box 5438
Wasilla, AK
99654

March 29, 2007

-3-

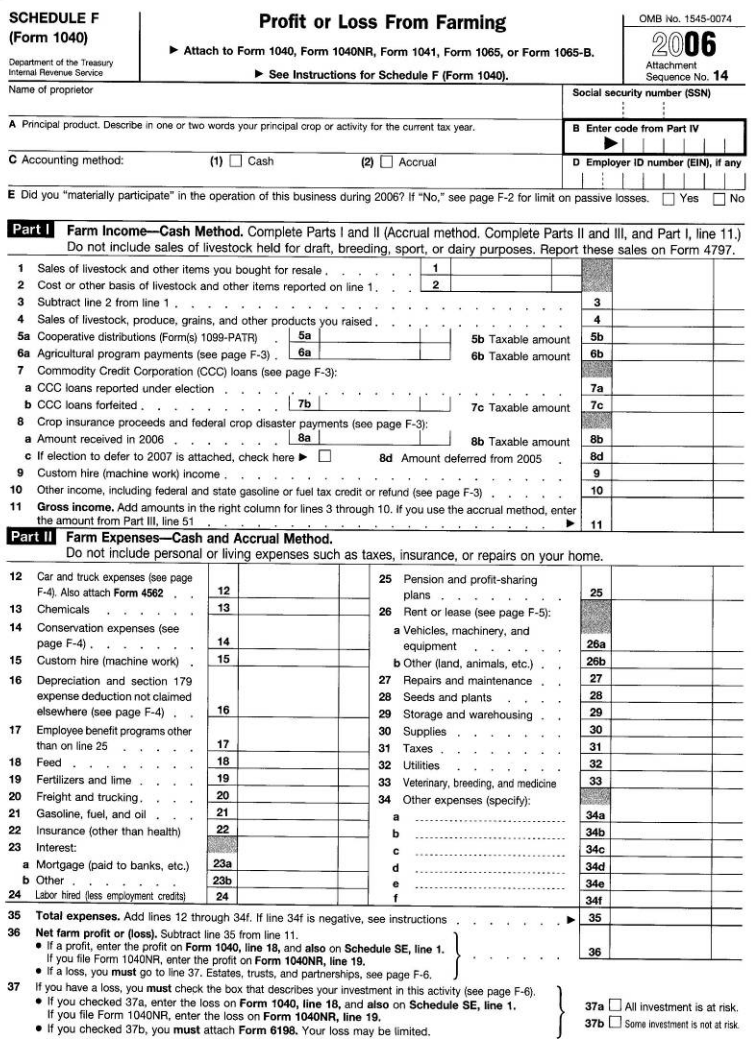
Response 50: Comment noted. However, the comment addresses an issue beyond the scope of this EIS.

Response 51: Before a certificate of compliance for the proposed line could be issued by the DEQ, as required by ARM 17.20.1602, DEQ must condition its approval with the requirement that "(c) for electric transmission facilities, that the facility will adhere to the national electric safety code regarding transmission lines and (d) for electric transmission facilities, that the electric field at the edge of the right-of-way will not exceed one kV per meter measured one meter above the ground in residential or subdivided areas unless the affected landowner waives this condition, and that the electric field at road crossings under the facility will not exceed seven kV per meter measured one meter above the ground."

Response 52: The rules implementing the Montana Environmental Policy Act require that alternatives to the proposed action "appreciably accomplish the same objectives or results as the proposed action." Storing and transporting electricity in batteries would not accomplish MATL's objective of building a transmission line to transmit electricity. The technology for battery cells on the transmission grid (for storing energy on the grid) has not yet been widely developed for commercial use, although it is being tested at the current time.

Fuel needed to transport the relatively heavy batteries would likely make this method of transmitting electricity uneconomical. If it were an efficient way to transport bulk electricity, it would have been done and there would be a fleet of trucks and trains transporting electricity in this manner.

Response 53: Your comment is noted but is beyond the scope of this document.



SCHEDULE F (Form 1040)

Department of the Treasury Internal Revenue Service

Profit or Loss From Farming

► Attach to Form 1040, Form 1040NR, Form 1041, Form 1065, or Form 1065-B.

► See Instructions for Schedule F (Form 1040).

OMB No. 1545-0074

2006

Attachment Sequence No. 14

Name of proprietor

Social security number (SSN)

A Principal product. Describe in one or two words your principal crop or activity for the current tax year.

B Enter code from Part IV ►

C Accounting method: (1) ☐ Cash (2) ☐ Accrual

D Employer ID number (EIN), if any

E Did you "materially participate" in the operation of this business during 2006? If "No," see page F-2 for limit on passive losses. ☐ Yes ☐ No

Part I **Farm Income—Cash Method.** Complete Parts I and II (Accrual method. Complete Parts II and III, and Part I, line 11.) Do not include sales of livestock held for draft, breeding, sport, or dairy purposes. Report these sales on Form 4797.

1	Sales of livestock and other items you bought for resale	1			
2	Cost or other basis of livestock and other items reported on line 1	2			
3	Subtract line 2 from line 1			3	
4	Sales of livestock, produce, grains, and other products you raised			4	
5a	Cooperative distributions (Form(s) 1099-PATR)	5a		5b Taxable amount	5b
6a	Agricultural program payments (see page F-3)	6a		6b Taxable amount	6b
7	Commodity Credit Corporation (CCC) loans (see page F-3):				
a	CCC loans reported under election			7a	
b	CCC loans forfeited	7b		7c Taxable amount	7c
8	Crop insurance proceeds and federal crop disaster payments (see page F-3):				
a	Amount received in 2006	8a		8b Taxable amount	8b
c	If election to defer to 2007 is attached, check here ► ☐			8d Amount deferred from 2005	8d
9	Custom hire (machine work) income			9	
10	Other income, including federal and state gasoline or fuel tax credit or refund (see page F-3)			10	
11	**Gross income.** Add amounts in the right column for lines 3 through 10. If you use the accrual method, enter the amount from Part III, line 51 ►			11	

Part II **Farm Expenses—Cash and Accrual Method.** Do not include personal or living expenses such as taxes, insurance, or repairs on your home.

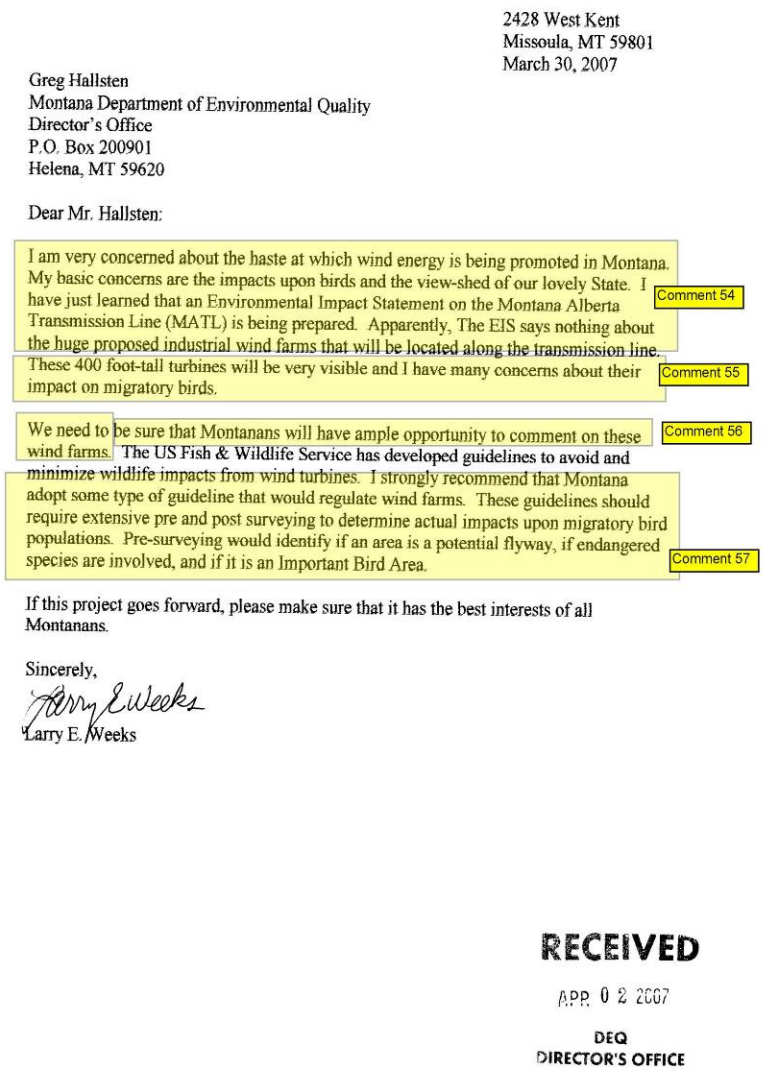
12	Car and truck expenses (see page F-4). Also attach **Form 4562**	12		25	Pension and profit-sharing plans	25	
13	Chemicals	13		26	Rent or lease (see page F-5):		
14	Conservation expenses (see page F-4)	14		a	Vehicles, machinery, and equipment	26a	
15	Custom hire (machine work)	15		b	Other (land, animals, etc.)	26b	
16	Depreciation and section 179 expense deduction not claimed elsewhere (see page F-4)	16		27	Repairs and maintenance	27	
17	Employee benefit programs other than on line 25	17		28	Seeds and plants	28	
18	Feed	18		29	Storage and warehousing	29	
19	Fertilizers and lime	19		30	Supplies	30	
20	Freight and trucking	20		31	Taxes	31	
21	Gasoline, fuel, and oil	21		32	Utilities	32	
22	Insurance (other than health)	22		33	Veterinary, breeding, and medicine	33	
23	Interest:			34	Other expenses (specify):		
a	Mortgage (paid to banks, etc.)	23a		a		34a	
b	Other	23b		b		34b	
24	Labor hired (less employment credits)	24		c		34c	
				d		34d	
				e		34e	
				f		34f	

35 **Total expenses.** Add lines 12 through 34f. If line 34f is negative, see instructions ► 35

36 **Net farm profit or (loss).** Subtract line 35 from line 11. 36
- If a profit, enter the profit on **Form 1040, line 18,** and **also** on **Schedule SE, line 1.** If you file Form 1040NR, enter the profit on **Form 1040NR, line 19.**
- If a loss, you **must** go to line 37. Estates, trusts, and partnerships, see page F-6.

37 If you have a loss, you **must** check the box that describes your investment in this activity (see page F-6).
- If you checked 37a, enter the loss on **Form 1040, line 18,** and **also** on **Schedule SE, line 1.** If you file Form 1040NR, enter the loss on **Form 1040NR, line 19.**
- If you checked 37b, you **must** attach **Form 6198.** Your loss may be limited.

37a ☐ All investment is at risk.
37b ☐ Some investment is not at risk.



2428 West Kent
Missoula, MT 59801
March 30, 2007

Greg Hallsten
Montana Department of Environmental Quality
Director's Office
P.O. Box 200901
Helena, MT 59620

Dear Mr. Hallsten:

I am very concerned about the haste at which wind energy is being promoted in Montana. My basic concerns are the impacts upon birds and the view-shed of our lovely State. I have just learned that an Environmental Impact Statement on the Montana Alberta Transmission Line (MATL) is being prepared. Apparently, The EIS says nothing about the huge proposed industrial wind farms that will be located along the transmission line. These 400 foot-tall turbines will be very visible and I have many concerns about their impact on migratory birds.

Comment 54

Comment 55

We need to be sure that Montanans will have ample opportunity to comment on these wind farms. The US Fish & Wildlife Service has developed guidelines to avoid and minimize wildlife impacts from wind turbines. I strongly recommend that Montana adopt some type of guideline that would regulate wind farms. These guidelines should require extensive pre and post surveying to determine actual impacts upon migratory bird populations. Pre-surveying would identify if an area is a potential flyway, if endangered species are involved, and if it is an Important Bird Area.

Comment 56

Comment 57

If this project goes forward, please make sure that it has the best interests of all Montanans.

Sincerely,

Larry E. Weeks

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APR 0 2 2007
DEQ
DIRECTOR'S OFFICE

Response 54: As indicated in the wildlife discussion in Chapter 3, "The Project area contains rolling hills, gentle ridges, and plateaus bisected by small drainages. There are no obvious "funnels," such as prominent ridgelines or mountain gaps that could potentially serve as large scale or regional migratory pathways. The relatively small ridges within the project area may serve as local pathways for birds passing through as a part of a large, broad front migration." Thousands of tundra swans, and snow and Ross's geese pass through the area each year along with neotropical migrant birds and migrating raptors. DEQ staff has observed flocks of snow geese on area lakes and has received reports of concentrations of other migratory waterfowl on area ponds and lakes. Raptors have been reported to migrate and to nest in some parts of the study area, notably the Kevin Rim area.

Chapter 4 describes the potential impacts of wind farms. Avian mortality estimates based on data collected from the various wind farms in the United States indicate an average of 2.19 avian fatalities per turbine per year for all species combined, and an average of 0.033 fatalities for raptors per turbine per year (Erickson et al. 2001). These estimates are based on survey methods that may or may not be equivalent between wind energy facilities, and may not accurately estimate actual mortality estimates. Excluding California, these averages are 1.83 total avian fatalities per turbine per year, and 0.006 raptor fatalities per turbine per year. The number of bird fatalities per turbine per year from individual studies has ranged from 0 birds per turbine per year (at Searsburg, Vermont, and Algona, Iowa) to 4.45 birds per turbine per year (at Buffalo Ridge Phase III, Minnesota). Recent estimates of raptor mortality for the Altamont Pass Wind Resource Area (WRA) ranged from 0.16 fatalities per turbine per year to 0.24 fatalities per turbine per year (Smallwood and Thelander 2004). The range of fatality rates

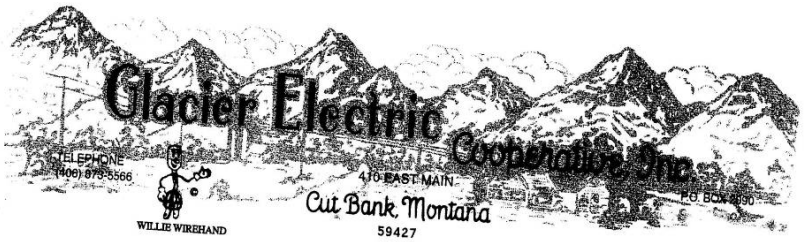
reported for these facilities probably reflects differences in the habitats and bird communities among the sites, as well as differences in the designs of the mortality monitoring studies that generated the reported data. Impacts of the proposed transmission line on avian species are described in Section 3.8.

Response 55: See the revised discussions of cumulative impacts in Chapter 4.

Response 56: See response to comment 23.

Response 57: DEQ does not have authority to regulate wind farms under the Major Facility Siting Act or any other statutory scheme that it administers. Furthermore, the Montana Environmental Policy Act is procedural in nature. While the Montana Environmental Policy Act requires DEQ to disclose cumulative impacts, it does not give DEQ substantive authority to regulate the activity causing those impacts.

Your opinion has been noted and forwarded to Montana Fish, Wildlife and Parks, the wildlife management agency for the State of Montana.



RECEIVED
MAR 30 2007
DEQ
DIRECTOR'S OFFICE

March 20, 2007

Montana Department of Environmental Quality
Director's Office
P.O. Box 200901
Helena, MT 59620-0901

Richard H. Opper, Director

Dear Mr. Opper:

Glacier Electric Cooperative, Inc. would like to offer its unequivocal support for the Montana Alberta Tie Line. In our opinion, it is one of the most promising and beneficial projects, not only for the local area, but for the State of Montana, that we have seen in many years. We encourage the Department of Environmental Quality to adopt, as quickly as possible, the "Proposed Action" approach as the preferred routing alternative to the project. Comment 58

Construction of the tie line, and the associated wind generation facility, will create a positive impact on our area in many ways. Comment 59

As a utility, it will offer an opportunity to interconnect, if the necessity arises, to utilize the capacity of the transmission line. It will also provide an opportunity for us to participate in the maintenance of the system in the future. Comment 60

Socially, it will create jobs both during the construction phases and after completion in the maintenance and operations stages. The activity associated with the construction itself will create additional business for local merchants and suppliers. Comment 61

Economically it will help our county, which has been suffering from a severe economic recession for many years, by improving the tax base which will assist all local residents. Comment 62

Last, but most significantly, it will benefit the entire state of Montana by providing a desperately needed transmission path for power created by new generation facilities that will develop in the vicinity of the new line, and elsewhere in Montana and in Alberta. Comment 63

Response 58: Comment noted.

Response 59: Comment noted.

Response 60: Comment noted.

Response 61: Comment noted. The benefits of the MATL line to Montana are discussed in Section 1.2 and Section 3.13.

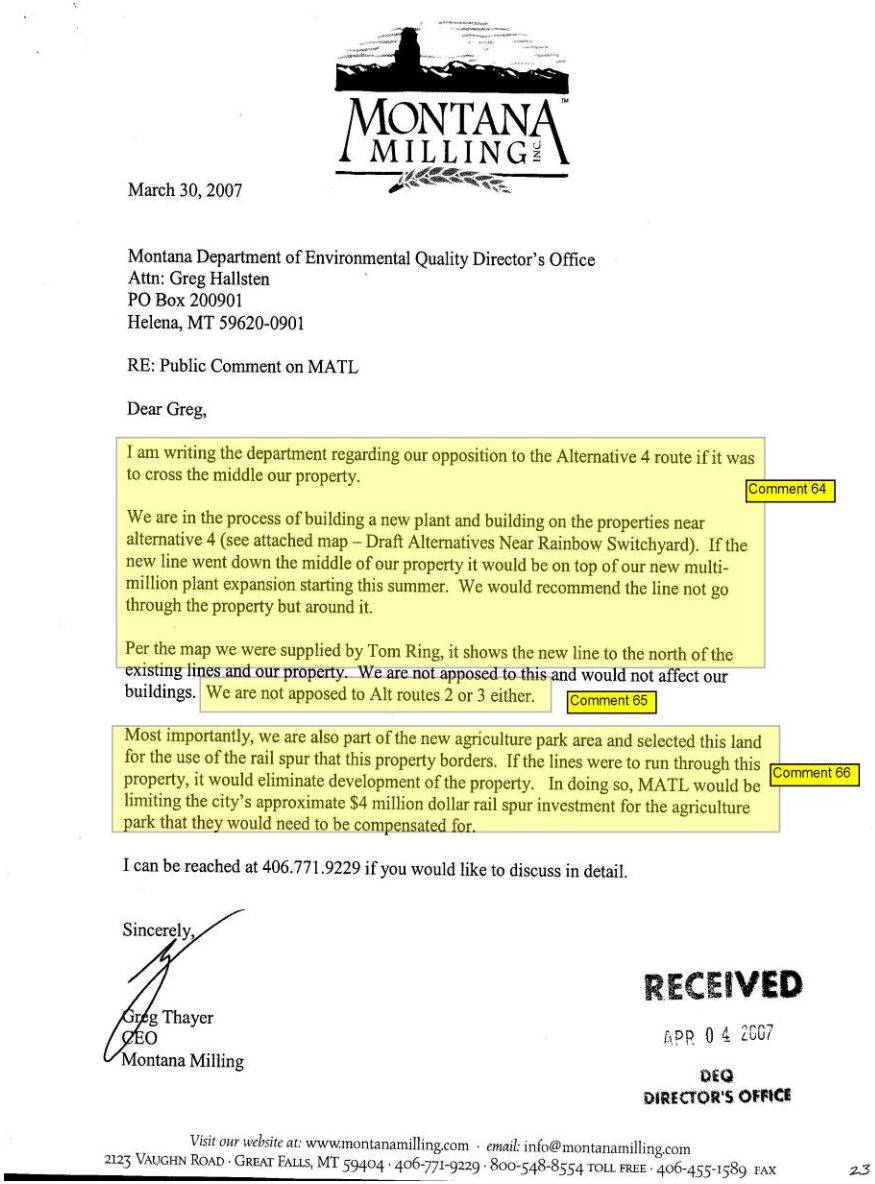
Response 62: Comment noted. The benefits of the MATL line to Montana are discussed in Section 1.2 and Section 3.13.

Response 63: Comment noted. The benefits of the MATL line to Montana are discussed in Section 1.2 and Section 3.13.

We congratulate the Montana Alberta Tie Line group on their innovative and progressive approach and wish them every success with the construction and operation of the transmission line.

Sincerely,

Jasen R. Bronec
General Manager



MONTANA MILLING INC.

March 30, 2007

Montana Department of Environmental Quality Director's Office
Attn: Greg Hallsten
PO Box 200901
Helena, MT 59620-0901

RE: Public Comment on MATL

Dear Greg,

I am writing the department regarding our opposition to the Alternative 4 route if it was to cross the middle our property. Comment 64

We are in the process of building a new plant and building on the properties near alternative 4 (see attached map – Draft Alternatives Near Rainbow Switchyard). If the new line went down the middle of our property it would be on top of our new multi-million plant expansion starting this summer. We would recommend the line not go through the property but around it.

Per the map we were supplied by Tom Ring, it shows the new line to the north of the existing lines and our property. We are not apposed to this and would not affect our buildings. We are not apposed to Alt routes 2 or 3 either. Comment 65

Most importantly, we are also part of the new agriculture park area and selected this land for the use of the rail spur that this property borders. If the lines were to run through this property, it would eliminate development of the property. In doing so, MATL would be limiting the city's approximate $4 million dollar rail spur investment for the agriculture park that they would need to be compensated for. Comment 66

I can be reached at 406.771.9229 if you would like to discuss in detail.

Sincerely,

Greg Thayer
CEO
Montana Milling

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APR 04 2007
DEQ
DIRECTOR'S OFFICE

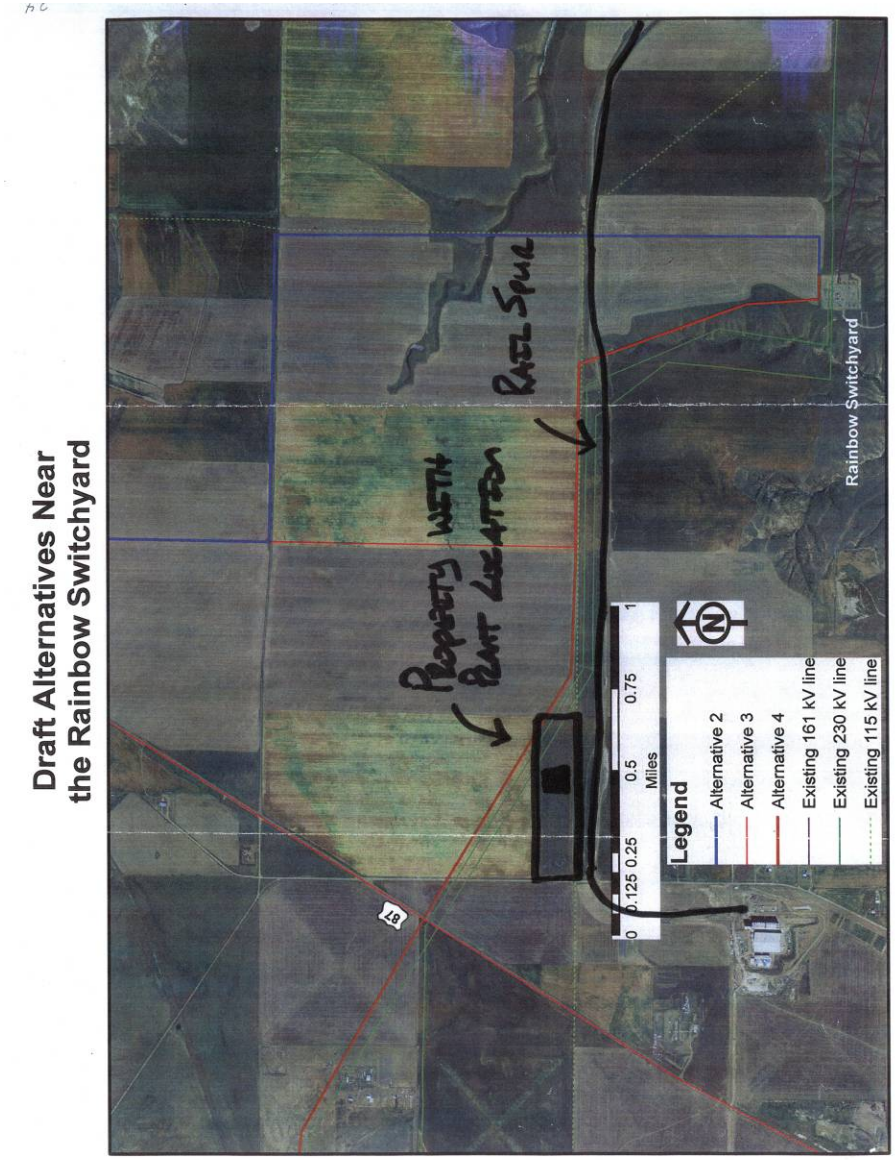
Visit our website at: www.montanamilling.com · email: info@montanamilling.com
2123 VAUGHN ROAD · GREAT FALLS, MT 59404 · 406-771-9229 · 800-548-8554 TOLL FREE · 406-455-1589 FAX

23

Response 64: Alternative 4 is located north of the two existing transmission lines that are located on the property in Section 20, Township 21 North, Range 4 East, and on the north side of WAPA's Great Falls to Conrad 230 kV line. A map received from the Cascade County Planning office has the location of the proposed mill southwest of the existing transmission lines. See response to comment 37.

Response 65: Comment noted.

Response 66: The three parcels you describe were rezoned from agricultural to light industrial on April 10, 2007.


Draft Alternatives Near
the Rainbow Switchyard
Rainbow Switchyard
Legend
Alternative 2
Alternative 3
Alternative 4
Existing 161 kV line
Existing 230 kV line
Existing 115 kV line
0 0.125 0.25 0.5 0.75 1
Miles
49


WOLFF MARY E
STATE OF MONTANA
SHEFFELS ERIC B
SHEFFELS JAMES R
87
INTERNATIONAL MALTING COMPANY
L T H FARMS INC
Legend
Alternative 2
Alternative 3
Alternative 4
Existing Transmission Lines
Major Highways
Highlighted Parcels
0 0.125 0.25 0.5
Miles

Matl Line Comments March 29, 2007
Fred Bodholt
415 Connell Ave
Missoula MT 59801

A combined Draft Environmental Impact Statement (EIS - Montana Department of Environmental Quality) and Environmental Assessment (EA - US Department of Energy) ("DEIS-EA") evaluates the proposed merchant transmission line between Lethbridge, Alberta and Great Falls, Montana known as the Montana Alberta Tie Limited (MATL) transmission line.

The DEIS/EA evaluates the transmission line but does not address the cumulative impacts of the wind farms proposed in the document. Comment 67

The owners of the proposed transmission line (Tonbridge Power) have held an "open season" for third parties to bid on capacity and, according to the DEIS/EA (Section 2.6), several wind farms have contracted with Tonbridge Power.

The DEIS/EA mentions cumulative impacts (Section 4.1) and states "Impacts from potential wind farms have been addressed in a general sense in the *Final Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (BLM 2005).*

The referenced BLM document gives guidance for site-specific EIS studies and documents, but contains no information on wind farms in the MATL area.

The DEIS/EA does not contain any evaluation of proposed impacts on the human environment and mitigation procedures for the planned wind farms that will utilize the MATL transmission line.

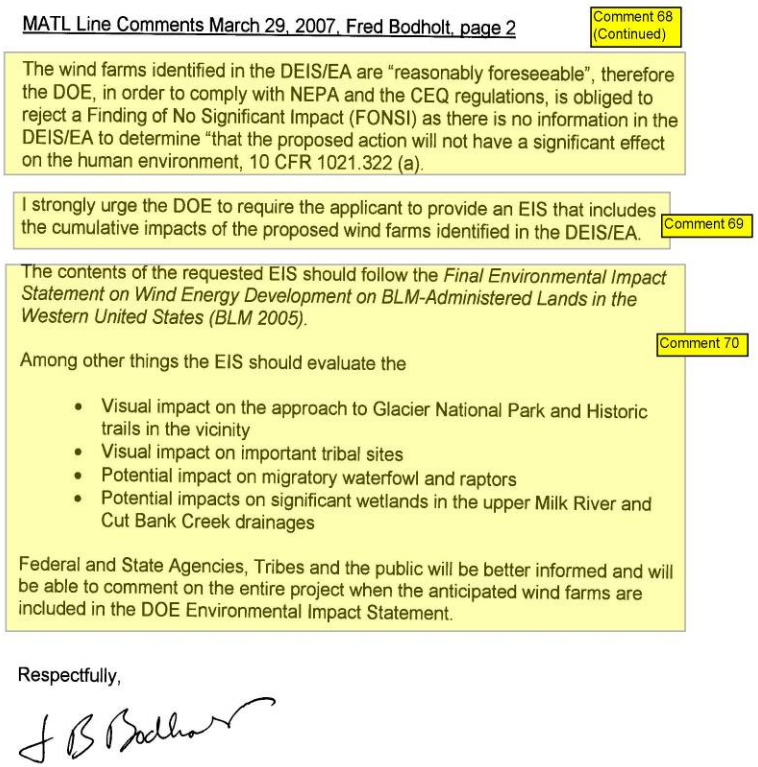
The Department of Energy is obliged by 10 CFR 1021.101 to comply fully with NEPA and the Council on Environmental Quality. The CEQ has defined cumulative effects as Comment 68

> The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7)

The purpose of DOE's EA is to decide whether to prepare an EIS or issue a FONSI, 10 CFR 1021.321 (b).

Response 67: See the revised discussion of impacts in Chapter 4and responses to comments 20 and 22.

Response 68: The impact analyses in Chapter 4 has been revised. However, information pertaining to the development of wind generation in the vicinity of the proposed transmission line lacks sufficient specificity to adequately analyze turbine size, location, and many project-specific impacts. DOE agrees with the commenter that the impacts identified in the March Environmental Assessment would not support a Finding of No Significant Impact. It is primarily for that reason that DOE has decided to prepare this EIS.



MATL Line Comments March 29, 2007, Fred Bodholt, page 2

Comment 68 (Continued)

The wind farms identified in the DEIS/EA are "reasonably foreseeable", therefore the DOE, in order to comply with NEPA and the CEQ regulations, is obliged to reject a Finding of No Significant Impact (FONSI) as there is no information in the DEIS/EA to determine "that the proposed action will not have a significant effect on the human environment, 10 CFR 1021.322 (a).

I strongly urge the DOE to require the applicant to provide an EIS that includes the cumulative impacts of the proposed wind farms identified in the DEIS/EA.

Comment 69

The contents of the requested EIS should follow the *Final Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (BLM 2005).*

Comment 70

Among other things the EIS should evaluate the

- Visual impact on the approach to Glacier National Park and Historic trails in the vicinity
- Visual impact on important tribal sites
- Potential impact on migratory waterfowl and raptors
- Potential impacts on significant wetlands in the upper Milk River and Cut Bank Creek drainages

Federal and State Agencies, Tribes and the public will be better informed and will be able to comment on the entire project when the anticipated wind farms are included in the DOE Environmental Impact Statement.

Respectfully,

J B Bodholt

Response 69: See response 68 above. Compliance with the National Environmental Policy Act is the responsibility of the Federal agencies, not the applicant. This Draft EIS contains a discussion of the impacts of wind farms in Chapter 4.

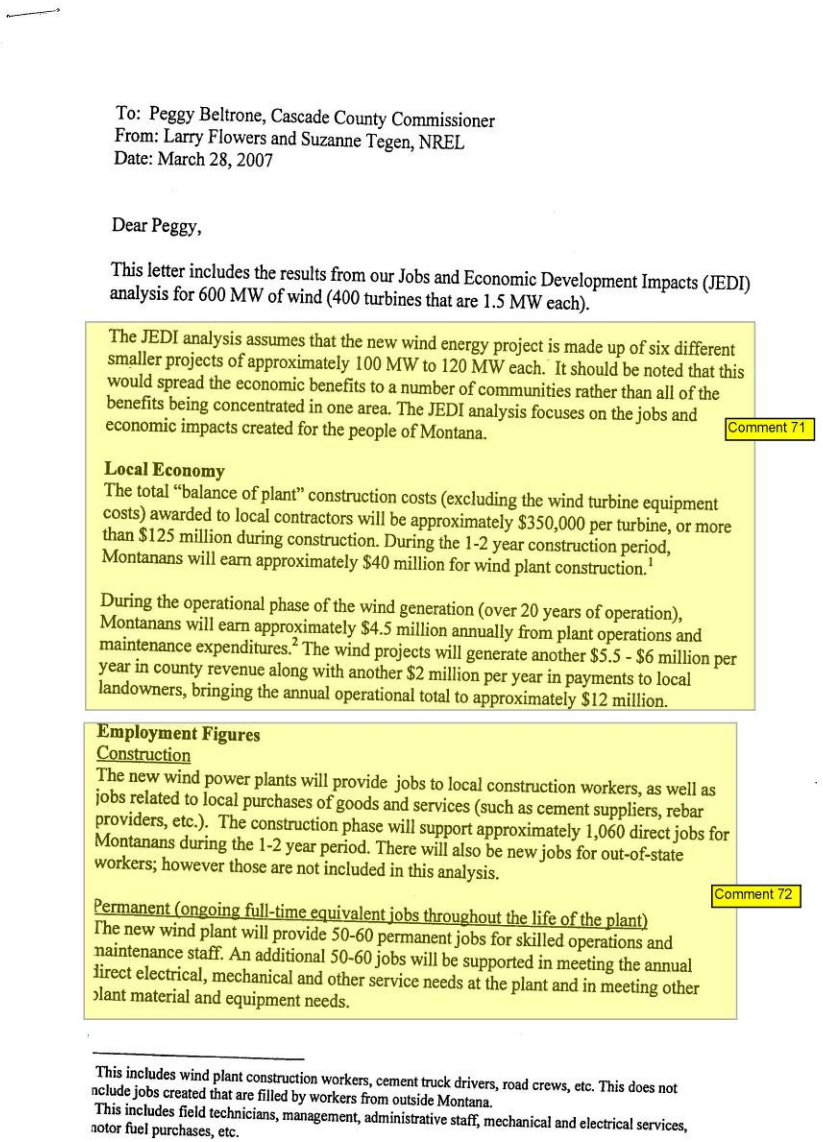
Response 70: See the revised discussion of impacts in Chapter 4 and response to comment 20. See also response to comment 415 regarding potential visual impacts of the MATL line and wind farms on viewpoints in Glacier National Park.

Proposed transmission lines would likely be minimal intrusive elements for historic trails and tribal sites when sensitive viewpoints are beyond three miles of the proposed facilities. Proposed wind farms could be more intrusive elements because of their larger size and scale. A detailed and site-specific analysis would be needed to determine potential effects. There are numerous historic trails crossing the region, primarily trending in a north-south direction along the Rocky Mountain Front. For minor trails, viewpoints within 3 miles of the transmission line could have some visual effect; however, the usual viewscape for a trail is along the trail, rather than toward peripheral areas. Unless the line crosses a trail, the effect on trail viewpoints would likely be minimal.

The Great North Trail is located more than 50 miles to the west of the proposed transmission line corridor and McCormick Ranch Wind Park; its visual qualities would not be affected. From elevated and distant viewpoints such as mountain tops where most sacred sites can be expected to occur, the proposed transmission line and wind farms would be no more intrusive visually than pre-existing roadways and highways, other transmission lines, cultivated fields, and

developed landscapes. The visual setting for these types of locations has already been severely modified.

Note that while there are wetlands in the area, these wetlands generally develop in low lying areas. Wind farms tend to be located on upland areas with more desirable wind regimes. The agencies have expanded Chapter 4 to respond to the need for additional discussion of visual impacts, migratory waterfowl and raptors, and prepared a floodplain and wetlands assessment as these pertain to cumulative impacts.



To: Peggy Beltrone, Cascade County Commissioner
From: Larry Flowers and Suzanne Tegen, NREL
Date: March 28, 2007

Dear Peggy,

This letter includes the results from our Jobs and Economic Development Impacts (JEDI) analysis for 600 MW of wind (400 turbines that are 1.5 MW each).

The JEDI analysis assumes that the new wind energy project is made up of six different smaller projects of approximately 100 MW to 120 MW each. It should be noted that this would spread the economic benefits to a number of communities rather than all of the benefits being concentrated in one area. The JEDI analysis focuses on the jobs and economic impacts created for the people of Montana.

Comment 71

Local Economy
The total "balance of plant" construction costs (excluding the wind turbine equipment costs) awarded to local contractors will be approximately $350,000 per turbine, or more than $125 million during construction. During the 1-2 year construction period, Montanans will earn approximately $40 million for wind plant construction.[1]

During the operational phase of the wind generation (over 20 years of operation), Montanans will earn approximately $4.5 million annually from plant operations and maintenance expenditures.[2] The wind projects will generate another $5.5 - $6 million per year in county revenue along with another $2 million per year in payments to local landowners, bringing the annual operational total to approximately $12 million.

Employment Figures
Construction
The new wind power plants will provide jobs to local construction workers, as well as jobs related to local purchases of goods and services (such as cement suppliers, rebar providers, etc.). The construction phase will support approximately 1,060 direct jobs for Montanans during the 1-2 year period. There will also be new jobs for out-of-state workers; however those are not included in this analysis.

Comment 72

Permanent (ongoing full-time equivalent jobs throughout the life of the plant)
The new wind plant will provide 50-60 permanent jobs for skilled operations and maintenance staff. An additional 50-60 jobs will be supported in meeting the annual direct electrical, mechanical and other service needs at the plant and in meeting other plant material and equipment needs.

This includes wind plant construction workers, cement truck drivers, road crews, etc. This does not include jobs created that are filled by workers from outside Montana.
This includes field technicians, management, administrative staff, mechanical and electrical services, motor fuel purchases, etc.

Response 71: Comment noted. The information provided is appreciated.

Response 72: Comment noted. The agencies appreciate the information provided.

In addition, the local economies will benefit from the indirect[3] and induced[4] job creation and earnings, resulting from direct expenditures listed above. The added benefits include over 1000 jobs ($24 million in earnings) during the construction period and 110 jobs ($2.5 million/year) during the operational phase of the plant. Comment 73

The following graphic representation shows the estimated *in-state* economic impacts from new wind generation in Montana. Inputs and assumptions for Montana Jobs and Economic Development Impact (JEDI) analysis are: Comment 74

- Wind capacity factor = 35%
- 600 MW or 400 1.5-MW wind turbines
- energy output of 1.84 TWh (1,840 GWh) per year
- Annual direct operations and maintenance costs = $12.50/kW/year
- Construction cost = $1,700/kW (or $2.55million/1.5-MW turbine)
- Property taxes = ~$9,000/MW/year
- Landowner royalties = $5,000/turbine/year = $2 million/year

We hope these results are useful for you. Please let us know if you have any questions.
Thank you,

Larry Flowers
(303)384-6910
Suzanne Tegen
(303) 384-6939

[3] Indirect jobs and earnings refer to the increase in economic activity that occurs when a contractor, vendor or manufacturer receives payment for goods or services and in-turn is able to pay others who support their business. For instance, this includes the banker who finances the construction contractor, the accountant who keeps the contractor's books, and the manufacturers and other suppliers that meet their material and equipment needs,

[4] Induced jobs and earnings result from the spending of those persons directly and indirectly supported by the project. This includes benefits to grocery store clerks, retail salespeople and child care providers among others.

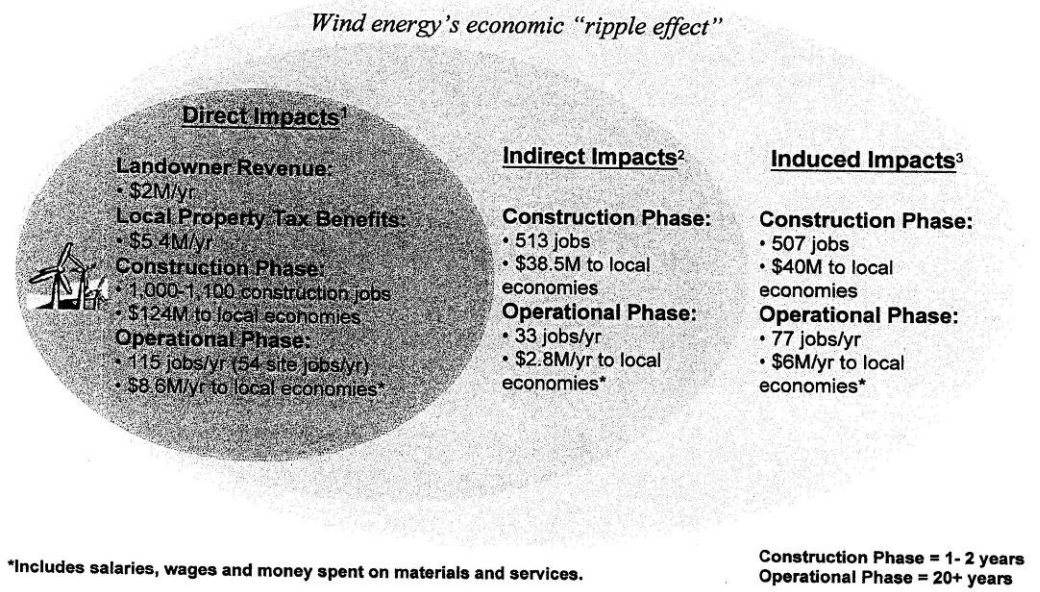
Response 73: Comment noted. The agencies appreciate the information provided.

Response 74: Comment noted. The agencies appreciate the information provided.

Montana - Economic impacts

600 MW (400 1.5-MW turbines) of new wind development

Source: WindPowering America, U.S. DOE



*Includes salaries, wages and money spent on materials and services.

Construction Phase = 1- 2 years
Operational Phase = 20+ years

Definitions

1. Examples of direct jobs include *construction workers* and others who work on construction, such as *cement truck operators and road crews.*

2. Examples of indirect jobs include *a banker financing the construction contractor or the manufacturers and suppliers who sell materials and equipment.*

3. Induced jobs and earnings result from the spending by people directly and indirectly supported by the wind project, such as *grocery store clerks, retail salespeople and child care providers*.

27 March 2007

Richard H. Opper
Director
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Opper: Comment 75

Your department recently released the *Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. 230 kV Transmission Line.* This proposed line has significant impact on property owners who farm along the various alternative locations of the line. The document is complex and requires detailed review of the analysis undertaken by your staff.

Pursuant to ARM 17.4.620 the agency shall allow for a 30-day comment period which, for this project, currently closes on 9 April 2007. However, your agency may extend this period up to an additional 30 days upon application of any person for good cause.

The following landowners whose property lies either in the study area, or have land upon which the line may be physically located, seek such a 30-day extension for good cause on the following grounds:

– Farmers have just moved into "high gear" for the growing season. At the time of the release of the report most were already busy with hauling grain, preparing for spraying and seeding operations, etc. At the present time many are in fact spraying. Unless we are fortunate enough to have a week of snow or rain (we can always hope!), very few of us will have the luxury of time indoors to adequately study the report.

– The developers of this project have the statutory authority to exercise eminent domain over our property to build and operate this line. Such "taking" is an awesome power which should not be granted unless those affected have a meaningful chance to review the project at issue. Thirty days in the middle of our farming season is not sufficient to read and comment on a detailed 300-page report.

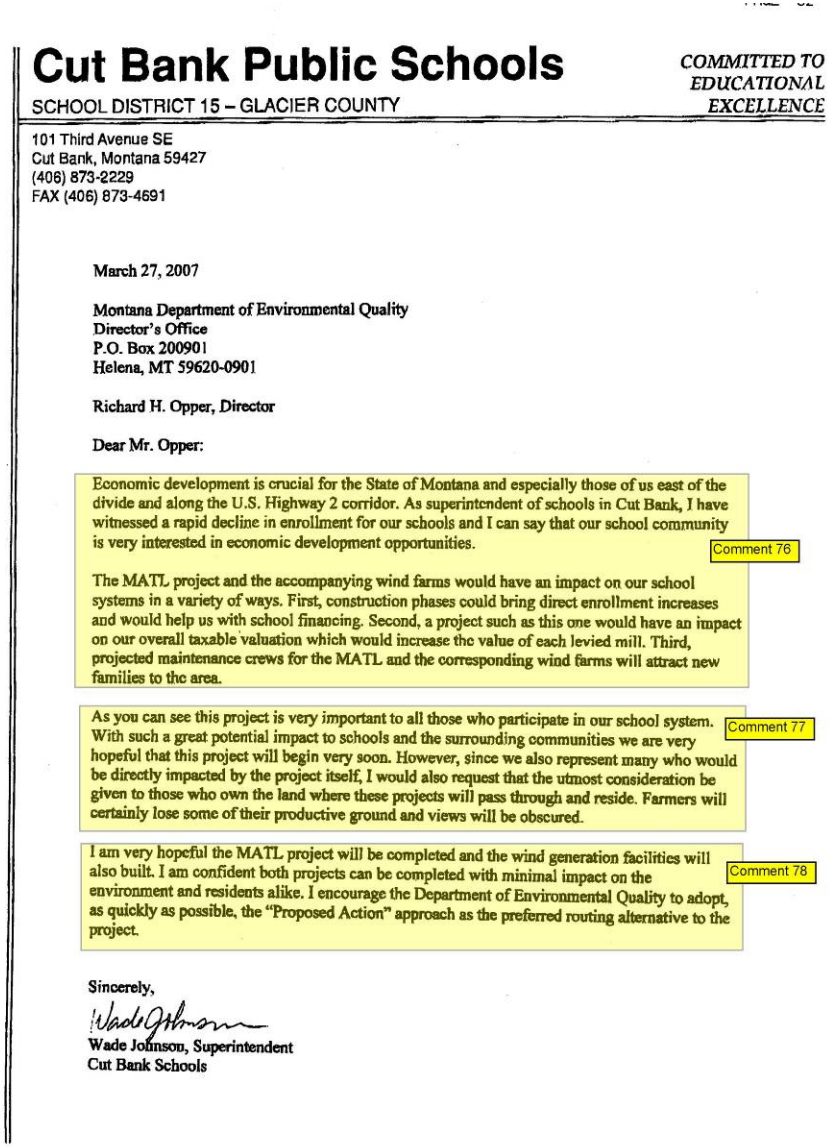
– The concept of a "merchant line" and our now deregulated electric utility world involve somewhat unique facts and issues. MATL's line is the first of its kind in the state, and those of us on the ground should be afforded adequate

Response 75: The comment period was extended an additional three weeks in response to this request.

time to really study the substance of your agency's report.

We think our request is reasonable under these circumstances. Please consider the importance of this review to those of us on the ground. We respectfully request you extend the comment period to 8 June 2007. Thank you very much for your consideration.

Signature	Name (please print)	Address
Jerry A. McRae	Jerry A. McRae	Dutton, Mt.
	Allen Denzer	Conrad, Mo.
	Chris Stephe-	Box 94 Dutton, Mt
John Blanchet	JOHN BLANCHET	2080 11TH LN NE DUTTON, MT.
Darlene Denzer	Darlene Denzer	Box 937 Conrad
Michael O'Keefe	Mike Koenig	Conrad
Donald M Koenig	Donald M Koenig	Conrad
Ray Habel	Ray J Habel	Dutton
Robert Kraney	Robert Kraney	Dutton
Lee Otness	Lee Otness	Brady
Robert E Stephens	Robert E. Stephens	Dutton, Mt
Katrina Kitken Martin	KATRINA MARTIN	Dutton, MT
John Sheffels	John Sheffels	GTF, MT
Valerie J Naylor	Valerie J. Naylor	Medora, ND Pondera Co. landowner
Clay Habel	Clay Habel	2381 20th Ln NE
Tim Johnson	Tim Johnson	2270 14TH RD NE DUTTON, MT
	Marc A Sturm	Flaxville, MT
James Sheffels	James Sheffels	2725 Clouser Dr 59404
Doug Crogan	Doug Crogan	PO Box 3661 Bozeman, MT



Cut Bank Public Schools
SCHOOL DISTRICT 15 – GLACIER COUNTY

COMMITTED TO EDUCATIONAL EXCELLENCE

101 Third Avenue SE
Cut Bank, Montana 59427
(406) 873-2229
FAX (406) 873-4691

March 27, 2007

Montana Department of Environmental Quality
Director's Office
P.O. Box 200901
Helena, MT 59620-0901

Richard H. Opper, Director

Dear Mr. Opper:

Economic development is crucial for the State of Montana and especially those of us east of the divide and along the U.S. Highway 2 corridor. As superintendent of schools in Cut Bank, I have witnessed a rapid decline in enrollment for our schools and I can say that our school community is very interested in economic development opportunities. Comment 76

The MATL project and the accompanying wind farms would have an impact on our school systems in a variety of ways. First, construction phases could bring direct enrollment increases and would help us with school financing. Second, a project such as this one would have an impact on our overall taxable valuation which would increase the value of each levied mill. Third, projected maintenance crews for the MATL and the corresponding wind farms will attract new families to the area.

As you can see this project is very important to all those who participate in our school system. With such a great potential impact to schools and the surrounding communities we are very hopeful that this project will begin very soon. However, since we also represent many who would be directly impacted by the project itself, I would also request that the utmost consideration be given to those who own the land where these projects will pass through and reside. Farmers will certainly lose some of their productive ground and views will be obscured. Comment 77

I am very hopeful the MATL project will be completed and the wind generation facilities will also built. I am confident both projects can be completed with minimal impact on the environment and residents alike. I encourage the Department of Environmental Quality to adopt, as quickly as possible, the "Proposed Action" approach as the preferred routing alternative to the project. Comment 78

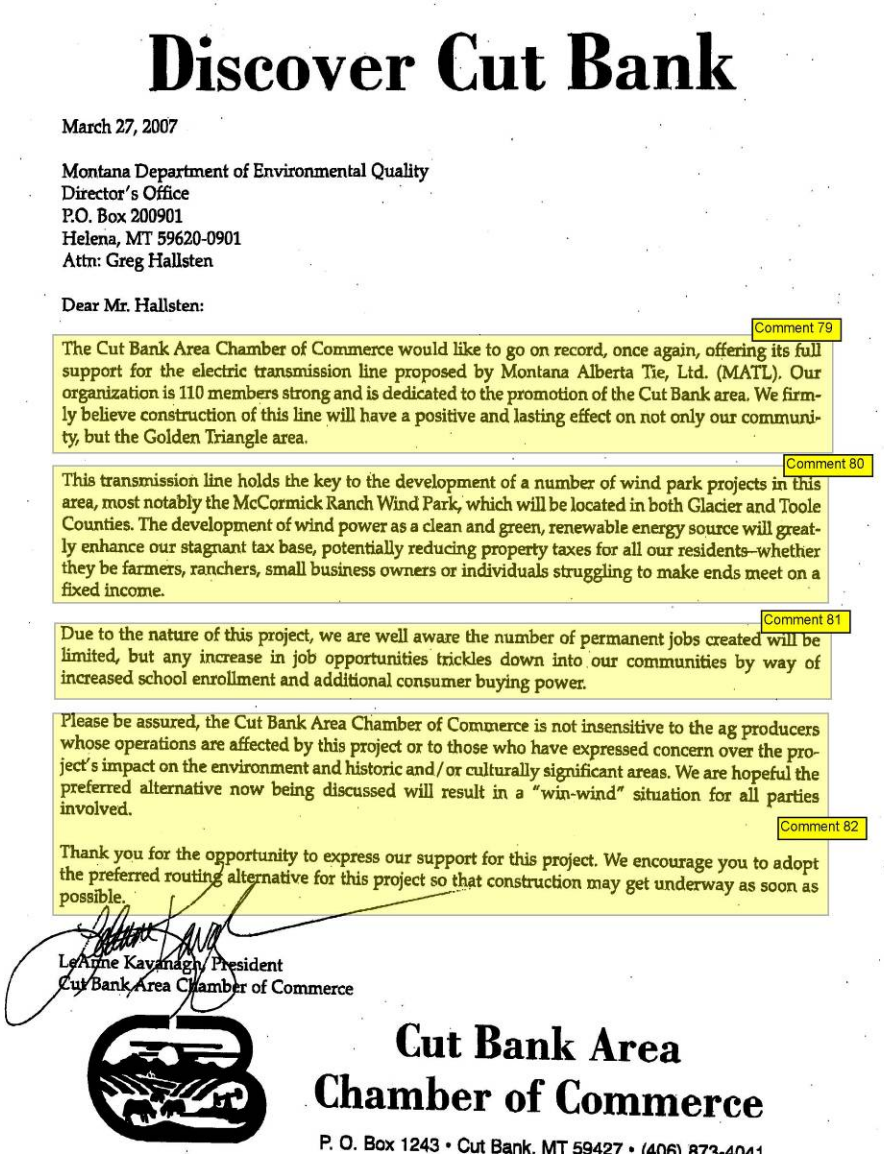
Sincerely,

Wade Johnson, Superintendent
Cut Bank Schools

Response 76: Comment noted.

Response 77: Comment noted. See updated discussions of impacts to farming in Section 3.13 and the updated discussion of cumulative visual impacts in Section 4.1.6.

Response 78: Comment noted.



Discover Cut Bank

March 27, 2007

Montana Department of Environmental Quality
Director's Office
P.O. Box 200901
Helena, MT 59620-0901
Attn: Greg Hallsten

Dear Mr. Hallsten:

Comment 79

The Cut Bank Area Chamber of Commerce would like to go on record, once again, offering its full support for the electric transmission line proposed by Montana Alberta Tie, Ltd. (MATL). Our organization is 110 members strong and is dedicated to the promotion of the Cut Bank area. We firmly believe construction of this line will have a positive and lasting effect on not only our community, but the Golden Triangle area.

Comment 80

This transmission line holds the key to the development of a number of wind park projects in this area, most notably the McCormick Ranch Wind Park, which will be located in both Glacier and Toole Counties. The development of wind power as a clean and green, renewable energy source will greatly enhance our stagnant tax base, potentially reducing property taxes for all our residents–whether they be farmers, ranchers, small business owners or individuals struggling to make ends meet on a fixed income.

Comment 81

Due to the nature of this project, we are well aware the number of permanent jobs created will be limited, but any increase in job opportunities trickles down into our communities by way of increased school enrollment and additional consumer buying power.

Please be assured, the Cut Bank Area Chamber of Commerce is not insensitive to the ag producers whose operations are affected by this project or to those who have expressed concern over the project's impact on the environment and historic and/or culturally significant areas. We are hopeful the preferred alternative now being discussed will result in a "win-wind" situation for all parties involved.

Comment 82

Thank you for the opportunity to express our support for this project. We encourage you to adopt the preferred routing alternative for this project so that construction may get underway as soon as possible.

LeAnne Kavanagh, President
Cut Bank Area Chamber of Commerce

Cut Bank Area
Chamber of Commerce

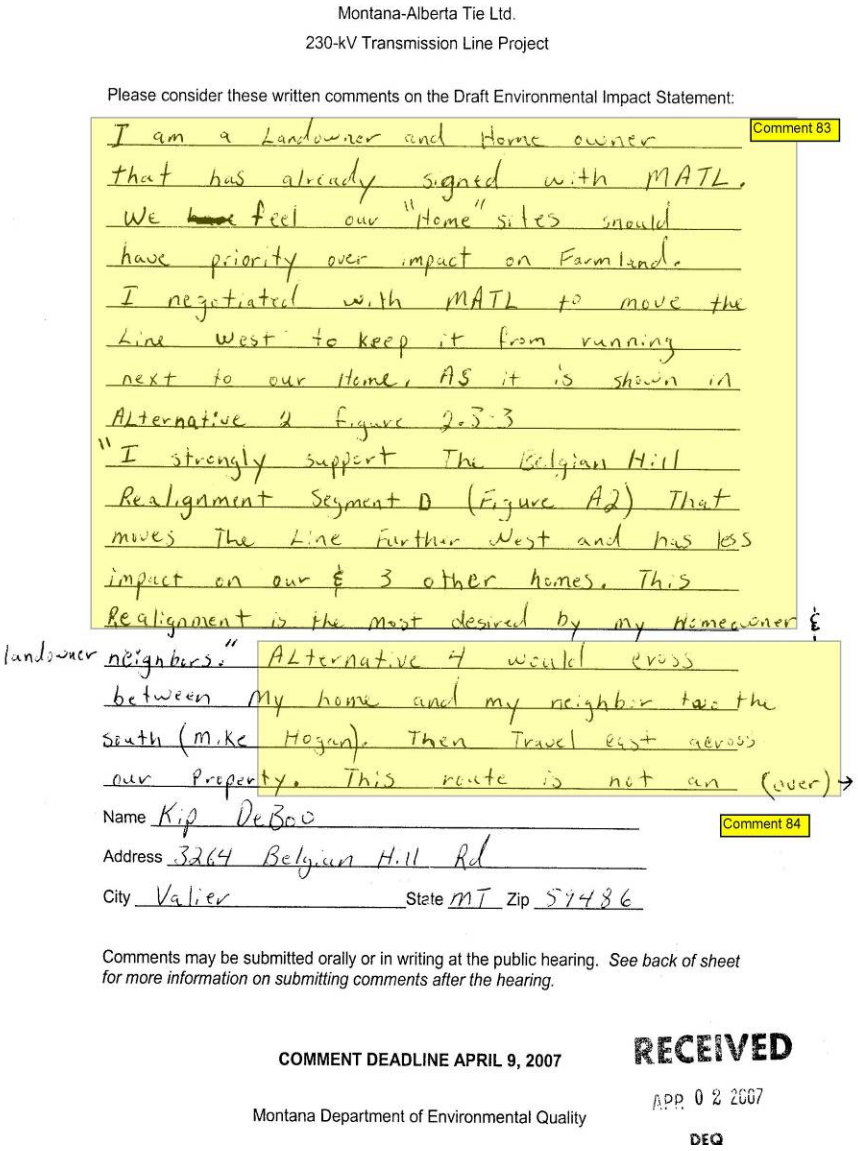
P. O. Box 1243 • Cut Bank, MT 59427 • (406) 873-4041

Response 79: Comment noted.

Response 80: Comment noted.

Response 81: Comment noted.

Response 82: Comment noted.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

I am a Landowner and Home owner that has already signed with MATL. We ~~have~~ feel our "Home" sites should have priority over impact on Farmland. I negotiated with MATL to move the Line west to keep it from running next to our Home. AS it is shown in Alternative 2 Figure 2.5.3 "I strongly support The Belgian Hill Realignment Segment D (Figure A2) That moves The Line Further West and has less impact on our & 3 other homes. This Realignment is the most desired by my Homeowner & landowner neighbors." Alternative 4 would cross between My home and my neighbor to the South (Mike Hogan). Then Travel east across our Property. This route is not an (over) →

Comment 83

Comment 84

Name Kip DeBoo
Address 3264 Belgian Hill Rd
City Valier State MT Zip 59486

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

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Response 83: Comment noted. Already signed means the landowner has signed a right-of-way agreement or an option with MATL.

Response 84: Alternative 4 would be located within ¼ mile of your residence and within ½ mile of your neighbor to the south and would result in major visual impact (see Section 3.15). Overall, Alternative 4 does the best job of avoiding close proximity to residences, with 67 residences within ½ mile of the line. Alternative 2 would have 77 residences within ½ mile, and Alternative 3 would have 94 residences

Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Comment 84 (Continued)

option as far as I am concerned. I have worked with neighbors & MATL to move the line West away from our homes to have less impact on our quality of life. Alternative 4 Impacts our & our neighbors homes drametically. I will oppose Alternative 4 in anyway I possibly can. I hope you will consider these comments. My phone # is 406-278-3035 If you would like to discuss any of this. THANK you.

Kip

HOW TO COMMENT AND PARTICIPATE AFTER THE MEETING

VIEW THE DRAFT EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Greg Hallsten, MEPA Coordinator	406-444-3276
Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624

Individuals needing an alternatively accessible form: of information should contact Mr. Hallsten at the address above.

Montana Department of Environmental Quality

Include as part of MATL public record

Gene & Linda Sentz

From: Gene & Linda Sentz [friends@3rivers.net]
Sent: Sunday, March 25, 2007 9:25 PM
To: Gene & Linda Sentz
Subject: LA Times: Debating wind energy

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Dept. Environmental Quality
Env. Management Bureau

Los Angeles Times, March 25, 2007

http://www.latimes.com/news/science/environment/la-me-wind25mar25,1,2561926.story?coll=la-news-environment

Comment 85

Turbines fan debate over wind energy

A plan to erect 50 windmills near a national monument spurs an outcry in the Palm Springs area.

By Janet Wilson
Times Staff Writer

In a blustery stretch of desert two hours east of Los Angeles, where many of the world's first power-producing windmills were built, a plan for more turbines has triggered a backlash that echoes a national debate over the merits of wind energy.

A proposal to build about 50 windmills next to Santa Rosa and San Jacinto Mountains National Monument has aroused passions in a region already dotted with 3,000 windmills, with opponents charging that the wind energy industry has neither delivered the promised power nor spared the environment.

The industry, which was born in California, now has projects in 40 states and $8 billion in investments over the last two years, according to the American Wind Energy Assn.

Supporters say wind power has come of age and will help slow global warming, while critics contend that it has delivered only a quarter of its promised energy, proved lethal to wildlife and, in the view of many residents, blighted the landscape.

Around the country, Internet blogs and anti-wind energy websites hum with angry postings about projects on picturesque ridgelines, seascapes and farmlands from New England to Texas.

Politicians and celebrities have weighed in. Sen. Edward M. Kennedy (D-Mass.) and his Nantucket Island neighbors have so far successfully fought installation of offshore turbines.

Their opposition, in turn, has prompted criticism that rich liberals are all for alternative power providing it doesn't mar their views.

In his San Gorgonio Pass community above the 10 Freeway, homeowner Les Starks has led the local opposition.

"They're going to take a national monument … and turn it into an industrial slum," Starks shouted, his voice nearly drowned by blustery gusts as he eyed the stark mountain front soaring above Palm Springs, then zeroed in on a bony ridge 4,000 feet up.

"They want to bulldoze that mesa, put in these enormous wind turbines … and make lots and lots of money."

Steve Christensen, owner of the mesa where the windmills would be erected, said all he wants to do is produce clean electricity in a region already dotted with windmills.

"We've got windmills to the north of us, windmills to the east and west of us, windmills everywhere but to the south," he said. "Why are they picking us out?"

Christensen, a civil engineer from Cypress, Texas, said his father bought the land half a century before Congress designated the surrounding slopes as a national monument. He said residential or commercial development on the squall-scoured mesa would be impossible.

"If you had a house or car or anything on there it would literally strip the paint off," he said.

San Gorgonio Pass is one of the windiest spots in North America, according to federal researchers.

The 3,000 existing turbines produce enough energy to power almost 25,000 homes for a year, said California Energy Commission spokeswoman Amy Morgan. But that is a fraction of their advertised capacity.

Although politicians and environmentalists concede that there are drawbacks to wind energy, most argue that the fallout from the turbines is minor compared with the global harm threatened by burning fossil fuels.

"Alternative energy is the policy of the U.S. government, the state of California and this county," said Riverside County Supervisor Marion Ashley, who is considering four new projects, including Christensen's.

"I sort of like my air-conditioner to keep running during the summer." And, he added, "These wind farms create a huge tax base."

Wind energy companies will pay $3.8 million in state and local business taxes this year, said Riverside County's chief deputy assessor, Michael Beaman, and more in property taxes.

According to public records, renewable energy companies — including wind, solar and geothermal — have received $93.8 million in subsidies from California ratepayers.

At the federal level, energy companies also receive generous tax write-offs, and production subsidies absorb start-up costs of windmills — new ones can cost $1.2 million apiece — and help reduce taxes on profits from traditional power sources.

Advocates say that wind companies receive a fraction of the billions given to coal and oil companies, and that they are vital to an industry with high infrastructure costs that emits no greenhouse gases and uses a free, readily available power source.

"The private sector does this stuff for money. This is America," said John White, a longtime environmentalist who heads a nonprofit consortium of environmental groups and renewable energy companies.

Critics, however, argue that wind projects subsidized with public funds deliver a fraction of the promised power.

For example, in 2003, San Gorgonio wind farms boasted of 413 megawatts of capacity, but actually produced a quarter of that electricity.

Advocates concede that turbines have produced full power just 10% of the time, but said newer machines provide some power 60% of the time. Today, wind energy provides less than 1% of the nation's power.

Converting 5% to wind "would require … almost 10 million acres, most of it rural and wild, turned over to 400-foot-high machines and their motion, noise and lights," wrote Lloyd Crawford of National Wind Watch, an online coalition of anti-wind power opponents. "That's not a green solution, but a huge disaster."

In California, turbines as big as minivans have caught fire in midair and crashed 200 feet to the earth. Broken propeller blades don't budge, no matter how brisk the breeze. Thousands of hawks, eagles and songbirds have been ground up by turbines.

Favorite picnic sites and scenic back roads were closed to the public after government land was leased for private windmills.

Near San Gorgonio Pass, residents complain of a ceaseless high-pitched whine from windmills and, at night, bright, revolving lights.

"It's like having a disco going … all night long," said Joyce Manley, a retired Los Angeles schoolteacher who lives within half a mile of hundreds of windmills.

Claude Kirby, a real estate agent for the Palm Springs office of the Bureau of Land Management, said the early days of wind power were problematic because of equipment failures and get-rich-quick schemes.

"You had a bunch of rogues … who were more interested in investment tax write-offs than actual wind energy," he said.

But he said that just as car engines evolved from the original slow-moving, smoke-belching Model Ts, the new, mammoth wind turbines have quieter blades that turn slowly to protect birds, can capture far more energy and do not break down as often.

Foes say Kirby is one of the main reasons the rogues arrived. "He's the one who leased them all the land," Manley said.

Kirby said he is proud of the leases he has for 1,224 turbines on 3,589 acres, netting the public annual rent of $640,610, adding, "I'd rather see wind turbines than black smoke from a coal plant."

John Geesman, a member of the California Energy Commission, conceded that wind projects have suffered growing pains from on-again, off-again tax credits and an imperfect technology. But he said the industry is overcoming its early problems.

"I think wind will be an extraordinary contributor to California's future energy mix," Geesman said.

Randall Swisher, head of the American Wind Energy Assn., said "the California experience is different than any other state in regard to being home to first-generation technology which didn't work all that well — some of the first-generation turbines didn't work at all."

Swisher said newer, larger turbines replacing flawed smaller ones are the solution. But they still don't produce 100% capacity because the wind doesn't always blow.

Still, he said, there is no stopping the fact that wind energy has come of age, with widespread public support.

"This is not a marginal, boutique industry any longer," he said. "It's a serious contributor to the nation's electric power needs."

Environmental groups are among the supporters.

"The most significant threat to the environment, which dwarfs everything else, is global warming, and the environmental community is united in supporting renewable solutions," said Julia Levin of Audubon California.

She said the specter of the loss of a fourth of the world's species from global warming in coming decades, predicted in numerous studies, trumps other concerns.

But even wind-power proponents say that some places should be off-limits to the production of green energy.

"These are great big turbines; you can't hide 'em. Not every community is going to be comfortable hosting a wind project," Swisher said. "That's the reality, and that's a conversation that has to go on between the wind industry and the local community."

One of the livelier conversations is taking place in the shadow of the Santa Rosa and San Jacinto Mountains National Monument.

"You can build wind facilities in bad places," said Sierra Club Executive Director Carl Pope, a fan of wind energy who contends that a national monument is an inappropriate setting.

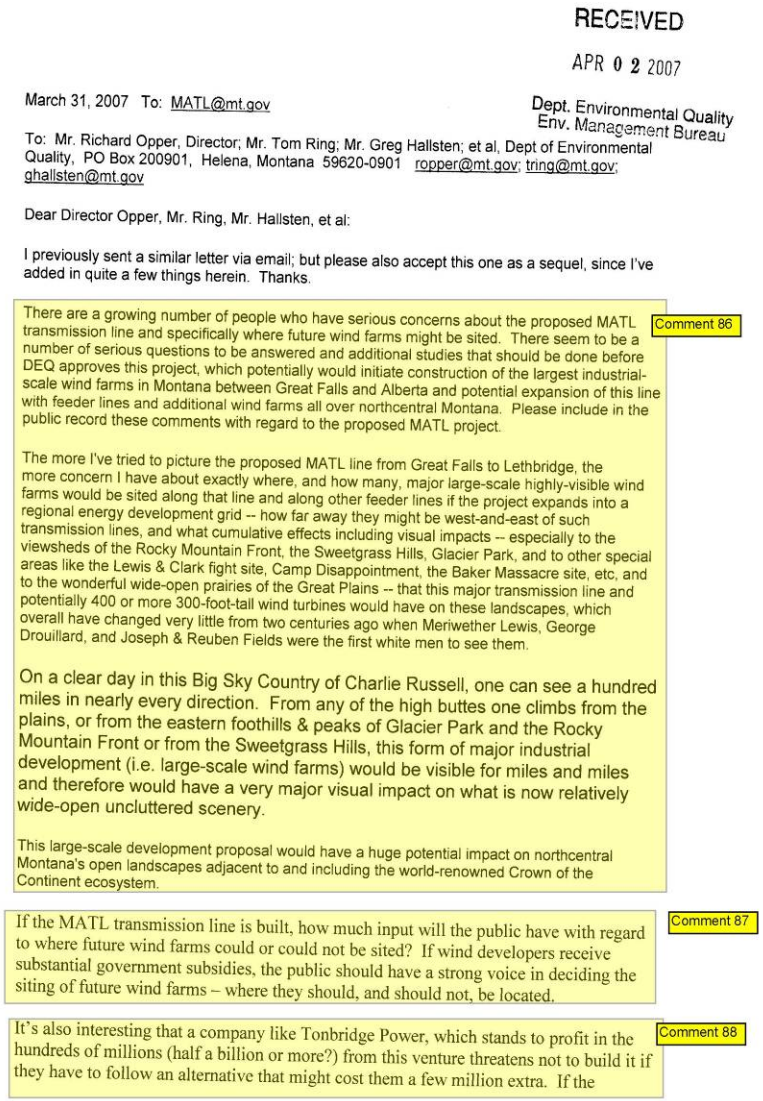
Christensen, the landowner who wants to build more windmills, said that when the monument was created in 2000, Congress included language saying development on adjoining properties should not be banned. But local officials are skeptical.

"I'm wary," said Ashley, the Riverside County supervisor.

He said a wind farm would mar a breathtaking, mountain-rimmed backdrop at the geographic gateway to Palm Springs that is an important tourism draw. "At a certain point," he said, "you have to draw the line."

*

Response 85: Thank you for the information. The articles have been added to the record.



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APR 0 2 2007

Dept. Environmental Quality
Env. Management Bureau

March 31, 2007 To: MATL@mt.gov

To: Mr. Richard Opper, Director; Mr. Tom Ring; Mr. Greg Hallsten; et al, Dept of Environmental Quality, PO Box 200901, Helena, Montana 59620-0901 ropper@mt.gov; tring@mt.gov; ghallsten@mt.gov

Dear Director Opper, Mr. Ring, Mr. Hallsten, et al:

I previously sent a similar letter via email; but please also accept this one as a sequel, since I've added in quite a few things herein. Thanks.

Comment 86

There are a growing number of people who have serious concerns about the proposed MATL transmission line and specifically where future wind farms might be sited. There seem to be a number of serious questions to be answered and additional studies that should be done before DEQ approves this project, which potentially would initiate construction of the largest industrial-scale wind farms in Montana between Great Falls and Alberta and potential expansion of this line with feeder lines and additional wind farms all over northcentral Montana. Please include in the public record these comments with regard to the proposed MATL project.

The more I've tried to picture the proposed MATL line from Great Falls to Lethbridge, the more concern I have about exactly where, and how many, major large-scale highly-visible wind farms would be sited along that line and along other feeder lines if the project expands into a regional energy development grid -- how far away they might be west-and-east of such transmission lines, and what cumulative effects including visual impacts -- especially to the viewsheds of the Rocky Mountain Front, the Sweetgrass Hills, Glacier Park, and to other special areas like the Lewis & Clark fight site, Camp Disappointment, the Baker Massacre site, etc, and to the wonderful wide-open prairies of the Great Plains -- that this major transmission line and potentially 400 or more 300-foot-tall wind turbines would have on these landscapes, which overall have changed very little from two centuries ago when Meriwether Lewis, George Drouillard, and Joseph & Reuben Fields were the first white men to see them.

On a clear day in this Big Sky Country of Charlie Russell, one can see a hundred miles in nearly every direction. From any of the high buttes one climbs from the plains, or from the eastern foothills & peaks of Glacier Park and the Rocky Mountain Front or from the Sweetgrass Hills, this form of major industrial development (i.e. large-scale wind farms) would be visible for miles and miles and therefore would have a very major visual impact on what is now relatively wide-open uncluttered scenery.

This large-scale development proposal would have a huge potential impact on northcentral Montana's open landscapes adjacent to and including the world-renowned Crown of the Continent ecosystem.

Comment 87

If the MATL transmission line is built, how much input will the public have with regard to where future wind farms could or could not be sited? If wind developers receive substantial government subsidies, the public should have a strong voice in deciding the siting of future wind farms – where they should, and should not, be located.

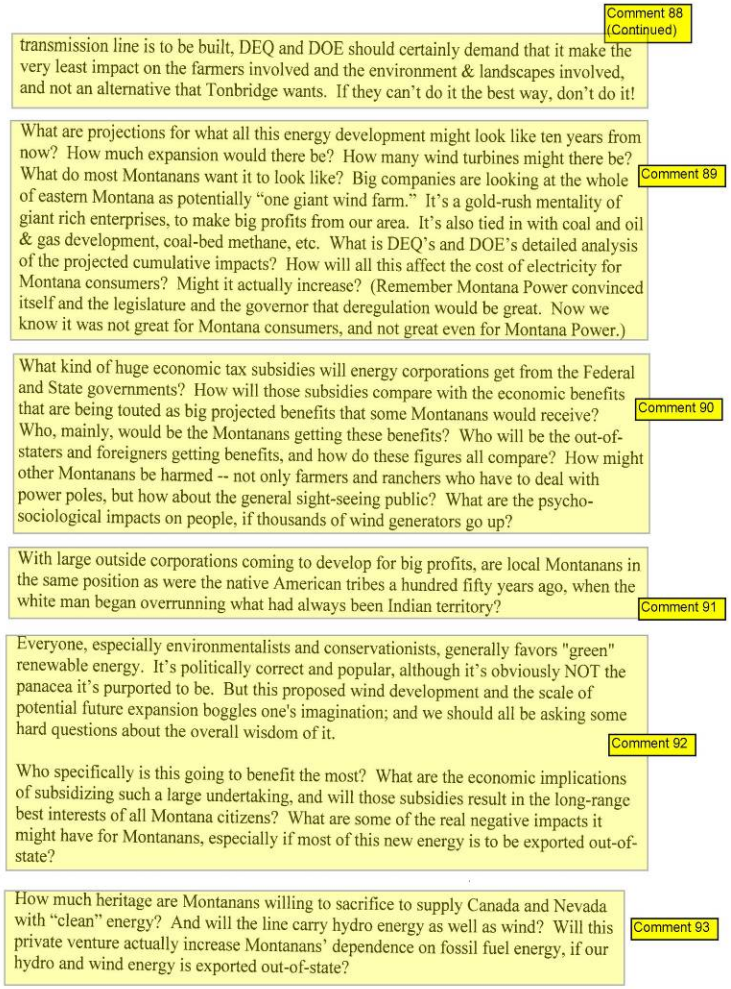
Comment 88

It's also interesting that a company like Tonbridge Power, which stands to profit in the hundreds of millions (half a billion or more?) from this venture threatens not to build it if they have to follow an alternative that might cost them a few million extra. If the

Response 86: See response to comments 20 and 29, and the revised discussion of impacts in Chapter 4.

Response 87: Refer to response to comment 23. Because the Montana legislature has removed DEQ's regulatory authority over the siting of wind farms, unless wind farm developers choose to provide a public involvement process in their site selection or unless the wind farms would be located on public land, members of the public are likely to have limited input in wind farm location.

Response 88: Comment noted.



Response 89: Comments noted. See the revised discussion of impacts in Chapter 4 for more discussion on wind farms. The agencies do not have regulatory authority over wind farm or oil, gas, or coalbed methane location nor can they predict what the effect of wind farms might be on Montana-consumed electricity prices. Westmoreland Resources, Inc., has applied to expand its coal mine near Hardin. This is the only coal-related proposal under DEQ's jurisdiction that is under consideration at this time. Most of the questions asked in this comment are beyond the scope of the EIS, and cannot be answered by the agencies.

Response 90: Beneficiaries would likely include project sponsors making profits on investments in wind farms, property owners receiving payments for hosting wind turbines, the state and counties collecting taxes, and people employed in the construction and operation of wind farms. See Chapter 4 for a revised discussion of potential impacts and Chapter 44 for impacts on socioeconomic resources. Electricity from wind generation on State lands is exempt from the wholesale energy transaction tax of $0.00015 per kWh transmitted. Electricity from any source, including renewables, generated on a reservation is exempt if it is for delivery out of state. Electricity generated by a US government agency for delivery outside the state and electricity from any source delivered to members of a cooperative or municipality is exempt from the WET tax (15-72-104, MCA).

Most of the questions asked in this comment are beyond the scope of the EIS, and cannot be answered by the agencies. The benefits and costs of MATL to Montana are discussed in Section 1.2 and Section 3.13. Potential impacts to Montana customers are discussed in Section 3.13. The agencies acknowledge that aesthetic impacts of wind farm development have a subjective component and can elicit

varying emotional responses from viewers based on individual values, experiences, and perceptions of derived benefits. See the discussion of visual impacts in Section 3.15 and the revised cumulative impacts in Section 4.16.

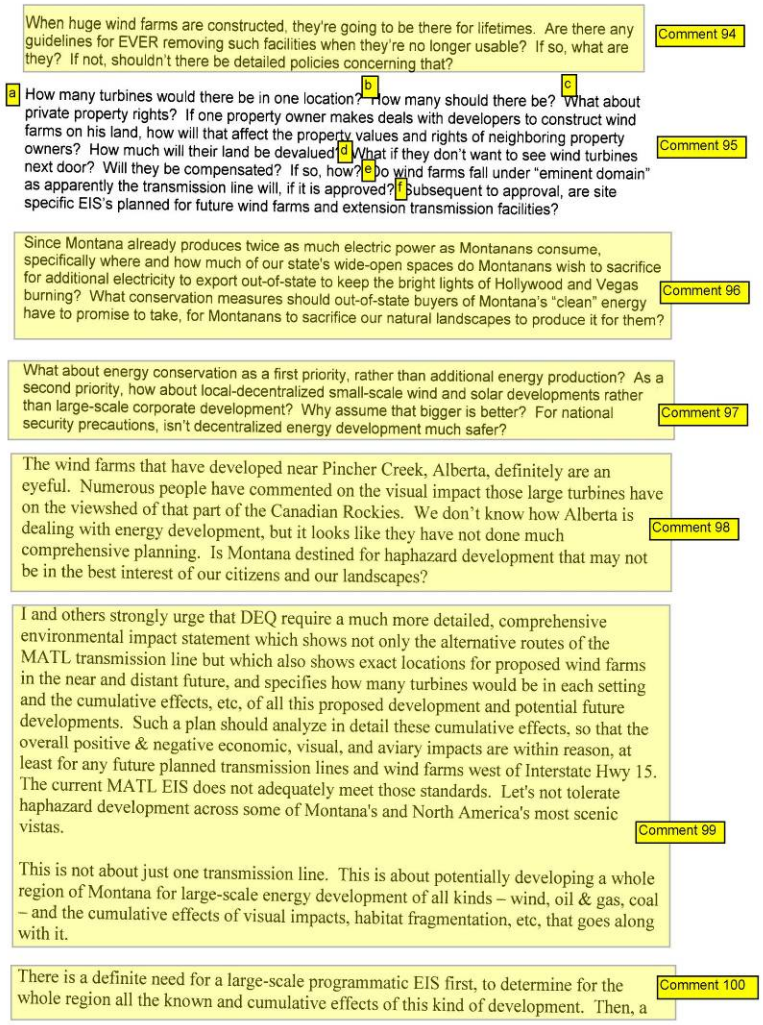
Response 91: The answer to this question is a matter of personal opinion beyond the scope of this EIS.

Response 92: Your questions are beyond the scope of this EIS. See the discussion of potential wind farm impacts in Chapter 4. The benefits and cost of MATL to Montana are discussed in Section 1.2 and in Section 3.13. Potential impacts to Montana customers are discussed in Section 3.13.

Response 93a: A quantitative answer to this question is beyond the scope of this document.

Response 93b: The line will be available to market power from a variety of sources including hydro. Those holding firm contracts would have first priority for access to the proposed MATL transmission line. At this time, wind farms that have signed contracts for service from MATL would have first access to the line. However, wind farms do not generate at full capacity all of the time. When they are producing less power than the capacity indicated in their firm contracts, space would be available on the line for power from other sources on a short-term, non-firm basis. This could include power from coal, gas, hydro, and even nuclear power.

Response 93c: There is no reason why the line would increase Montana's dependence on fossil fuel energy. Montana's utilities must meet a certain amount of their supply portfolio using renewable energy, as required under Montana's Renewable Portfolio Standard enacted in April 2005 (69-8-1001 through 69-8-1008, MCA).



Response 94: Potential mitigating measures for decommissioning wind farms are indicated in Appendix O. However, these are simply potential measures and could not be made mandatory by the agencies without passage of authorizing legislation or a request by MATL.

Response 95a: See Chapter 4 for a discussion of the number of turbines that might be located in an area.

Response 95b: The optimum number of turbines is beyond the scope of this EIS.

Response 95c: If the property value of adjacent land is dependent upon the views from that property, property values could decrease if turbines obscure views. The degree of change in property values could depend upon the site specific situation, uses of the adjacent land in question (if the land is used for farming or grazing, the value might not change), and the availability of similar land in the area that is not adjacent to a wind farm.

Response 95d: If the neighbors do not want to look at nearby wind turbines, they could ask for compensation from a wind farm developer but the agencies are not aware of any requirements that compensation must be provided by the developer for off-site visual impacts.

Response 95e: 70-30-102, MCA, enumerates 44 public uses for which eminent domain can be exercised. Wind farms are not among the uses enumerated.

Response 95f: Because the agencies have no regulatory authorities for wind farms beyond those listed in Chapter 4, the agencies do not anticipate that it would perform any further site specific EIS for the wind farms. If a DEQ permit

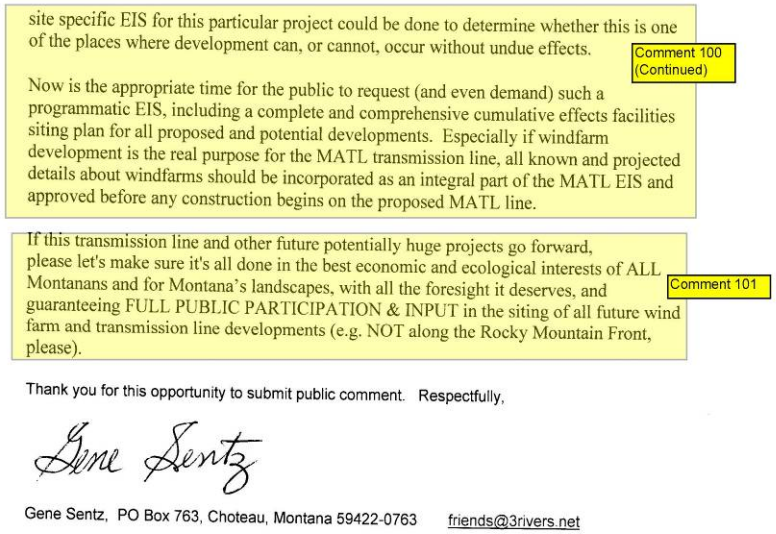
would be required, an environmental assessment would be required to determine whether there is a potential for significant impacts to occur. An EIS would not be required without a finding that there would be potential for significant environmental impacts. Likewise, extension of transmission lines not defined as "facilities" under the Major Facility Siting Act are unlikely to require further environmental review by DEQ if the project sponsor obtains easements or options from 75 percent of the landowners who collectively own 75 percent of the land that would be crossed by the interconnecting line. If extended transmission lines would require review by DEQ as a facility covered by the Major Facility Siting Act or under another permit, then the environmental review process would begin when an application is filed.

Response 96: The answers to these questions are beyond the scope of the EIS.

Response 97: The agencies encourage energy conservation; however, there is no way for the state to force people to conserve. Inducing decentralized wind and solar development is outside the agencies' jurisdiction and is beyond the scope of the EIS.

Response 98: Whether Montana is destined for haphazard development is beyond the scope of this EIS.

Response 99: The locations of the alternatives are mapped and described in Chapter 2 of the EIS. Also, see responses to comments 20, 22, and 89.



site specific EIS for this particular project could be done to determine whether this is one of the places where development can, or cannot, occur without undue effects.

Comment 100 (Continued)

Now is the appropriate time for the public to request (and even demand) such a programmatic EIS, including a complete and comprehensive cumulative effects facilities siting plan for all proposed and potential developments. Especially if windfarm development is the real purpose for the MATL transmission line, all known and projected details about windfarms should be incorporated as an integral part of the MATL EIS and approved before any construction begins on the proposed MATL line.

If this transmission line and other future potentially huge projects go forward, please let's make sure it's all done in the best economic and ecological interests of ALL Montanans and for Montana's landscapes, with all the foresight it deserves, and guaranteeing FULL PUBLIC PARTICIPATION & INPUT in the siting of all future wind farm and transmission line developments (e.g. NOT along the Rocky Mountain Front, please).

Comment 101

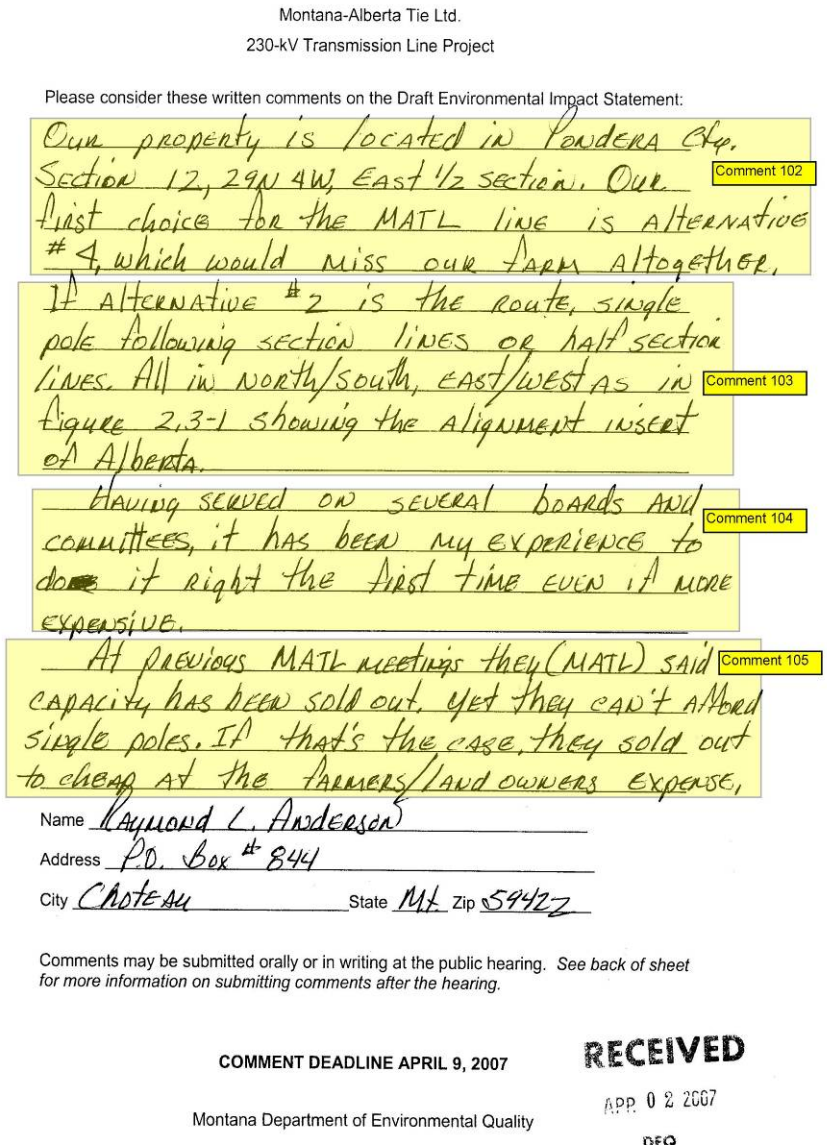
Thank you for this opportunity to submit public comment. Respectfully,

Gene Sentz

Gene Sentz, PO Box 763, Choteau, Montana 59422-0763 friends@3rivers.net

Response 100: See response to comment 24. MATL is proposed as a merchant transmission line for electricity producers to ship their product to market. Electricity from any source, including wind farms, could be transmitted over the line.

Response 101: Comment noted. See response to comment 23 relative to public participation in the siting of wind farms.



Montana-Alberta Tie Ltd.

230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

Our property is located in Poindera Cty. Section 12, 29N 4W, East ½ section. Our first choice for the MATL line is Alternative #4, which would miss our farm Altogether. Comment 102

If Alternative #2 is the route, single pole following section lines or half section lines. All in North/South, East/West as in figure 2.3-1 showing the alignment insert of Alberta. Comment 103

Having served on several boards and committees, it has been my experience to do it right the first time even if more expensive. Comment 104

At previous MATL meetings they (MATL) said capacity has been sold out, yet they can't afford single poles. If that's the case, they sold out to cheap at the farmers/land owners expense, Comment 105

Name Raymond L. Anderson

Address P.O. Box # 844

City Choteau State Mt. Zip 59422

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

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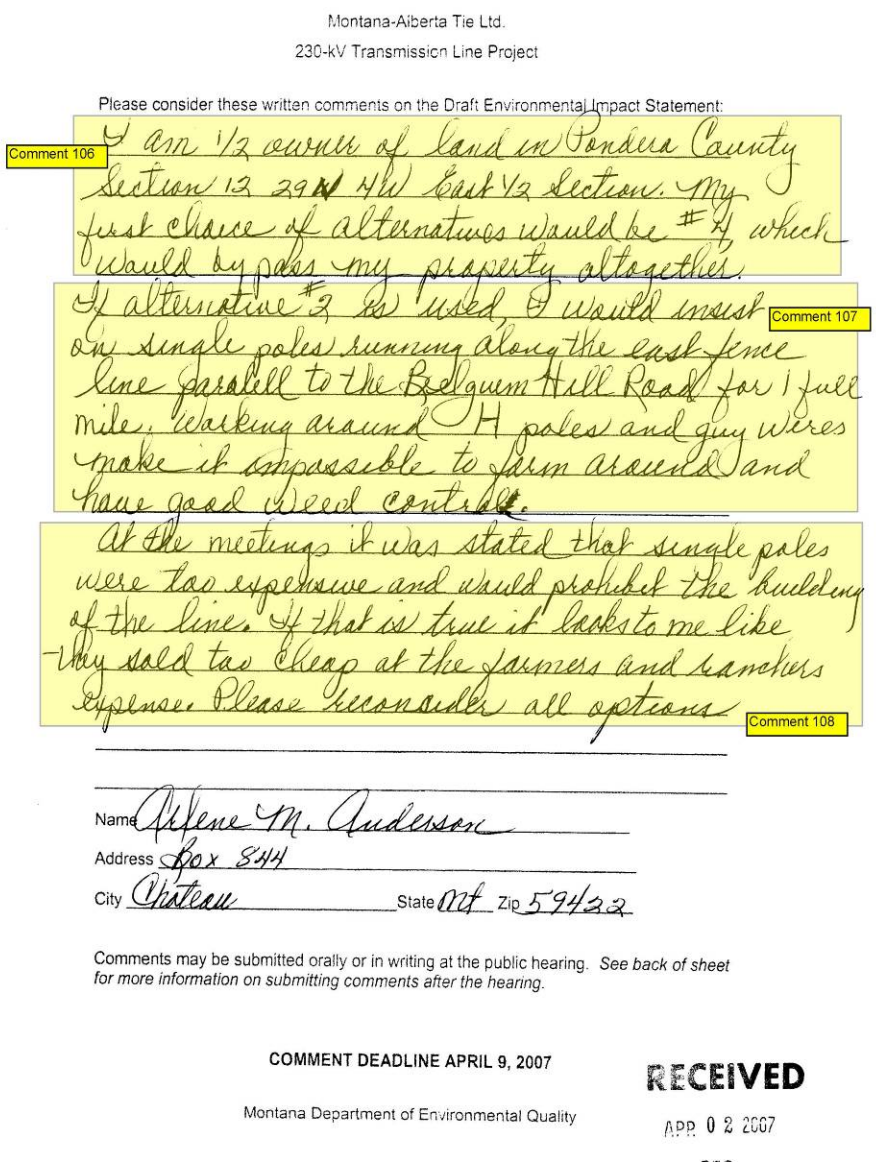
Montana Department of Environmental Quality

Response 102: Comment noted.

Response 103: Comment noted.

Response 104: Comment noted.

Response 105: Comment noted.



Montana-Aiberta Tie Ltd.

230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

Comment 106

I am 1/2 owner of land in Pondera County Section 13 29N 4W East 1/2 Section. My first choice of alternatives would be #4 which would by pass my property altogether.

If alternative #2 is used, I would insist on single poles running along the east fence line parallel to the Belgium Hill Road for 1 full mile. Working around H poles and guy wires make it impossible to farm around and have good weed control.

Comment 107

At the meetings it was stated that single poles were too expensive and would prohibit the building of the line. If that is true it looks to me like they sold too cheap at the farmers and ranchers expense. Please reconsider all options

Comment 108

Name Arlene M. Andersson

Address Box 844

City Chateau State MT Zip 59422

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

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Response 106: Comment noted.

Response 107: Comment noted.

Response 108: Comment noted.

Apr 04 07 02:15p Doug Banka 406-278-3580 p.1

Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

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DIRECTOR'S OFFICE

April 3, 2007

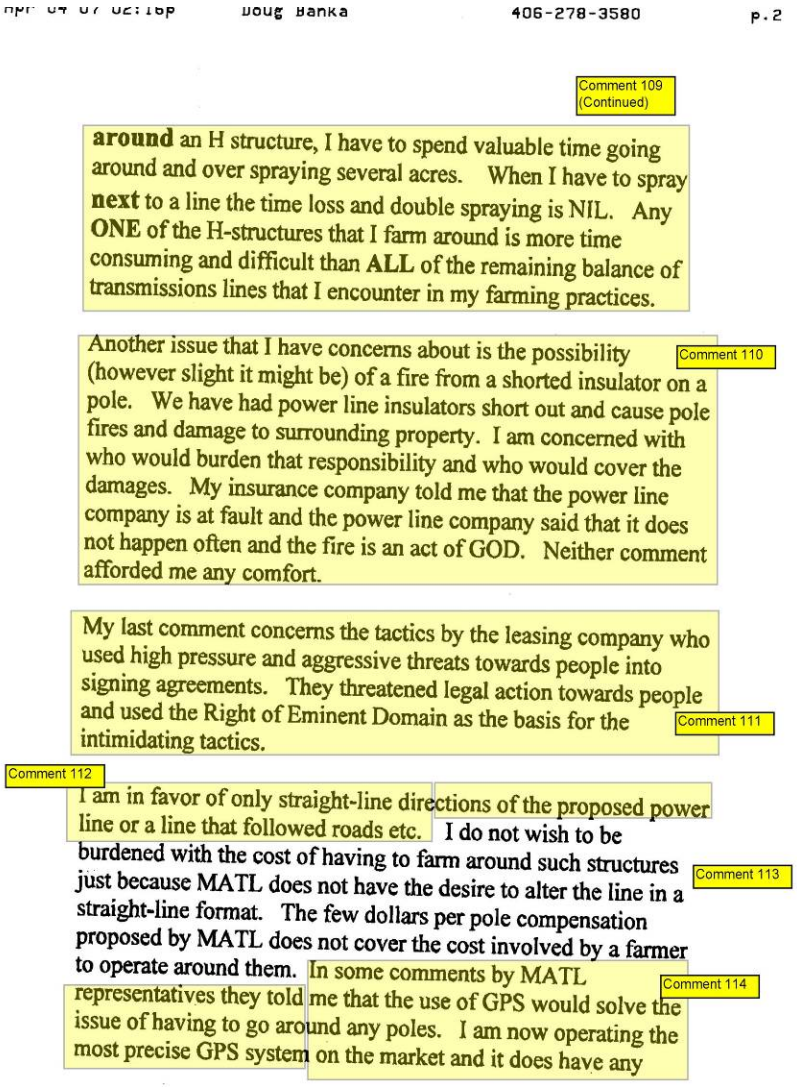
Mr. Hallsten,

Comment 109

I would like to share a couple of comments with you concerning the proposed power line connecting Lethbridge Alberta and Great Falls Montana. I am not concerned with the line itself but as to the proposed direction and installation of the line. As of the today I am encumbered with 8 power lines on my farm. I am also encumbered with BN Railroad, Interstate 15, an irrigation system, 4 underground oil and gas lines, 2 fiber optic lines, and several ballistic missile cables among other things.

Of the 8 power line systems that criss-cross my property I have 1 – 230 KV line (30 + single poles), 1 – 115 KV line (24 double poles H-structure), 2- 69 KV lines (single pole), and several small distribution lines. The total number of poles is in hundreds. I am **VERY** familiar with the farming techniques of having to farm around poles. Of the total poles that encompass my farm the H structure (115 KV) Northwestern Energy line has 24 poles that diagonal across my farm. Of those 24 poles (12 sets), only 5 sets are on farm ground. Those 5 particular sets are the most difficult to farm around and are the most problematic for weeds control and for pest control (i.e. gophers and grasshoppers etc). The problem lies in the diagonal direction of the NW Energy line. All of the other major transmission lines follow roads and boundary lines and cause little to no issues. They are easy and simple to farm NEXT to rather than trying farm AROUND them. When I have to spray

Response 109: Comment noted.



Apr 04 07 02:16p Doug Banka 406-278-3580 p.2

Comment 109 (Continued)

around an H structure, I have to spend valuable time going around and over spraying several acres. When I have to spray **next** to a line the time loss and double spraying is NIL. Any **ONE** of the H-structures that I farm around is more time consuming and difficult than **ALL** of the remaining balance of transmissions lines that I encounter in my farming practices.

Another issue that I have concerns about is the possibility (however slight it might be) of a fire from a shorted insulator on a pole. We have had power line insulators short out and cause pole fires and damage to surrounding property. I am concerned with who would burden that responsibility and who would cover the damages. My insurance company told me that the power line company is at fault and the power line company said that it does not happen often and the fire is an act of GOD. Neither comment afforded me any comfort.

Comment 110

My last comment concerns the tactics by the leasing company who used high pressure and aggressive threats towards people into signing agreements. They threatened legal action towards people and used the Right of Eminent Domain as the basis for the intimidating tactics.

Comment 111

Comment 112

I am in favor of only straight-line directions of the proposed power line or a line that followed roads etc. I do not wish to be burdened with the cost of having to farm around such structures just because MATL does not have the desire to alter the line in a straight-line format. The few dollars per pole compensation proposed by MATL does not cover the cost involved by a farmer to operate around them. In some comments by MATL representatives they told me that the use of GPS would solve the issue of having to go around any poles. I am now operating the most precise GPS system on the market and it does have any

Comment 113

Comment 114

Response 110: Faulty transmission lines occasionally are the cause of fires. The fault or liability in each instance would be determined based on the facts in that particular case. However, the agencies note your comment that potentially there are additional costs that should be considered, although they may be difficult to assess in advance.

Response 111: Comment noted. The land leasing company works directly for MATL and their methods and practices are not sanctioned or controlled by the agencies.

Response 112: Comment noted.

Response 113: The agencies worked with consultants to better quantify the costs of the line to farmers as indicated in Section 3.13.

Response 114: Comment noted. Even if a GPS system could guide equipment around a pole, there would be additional costs associated with time, fuel, seed, fertilizer, and herbicides to work around the poles.

allowances for power poles or trees in its computer-operating program.

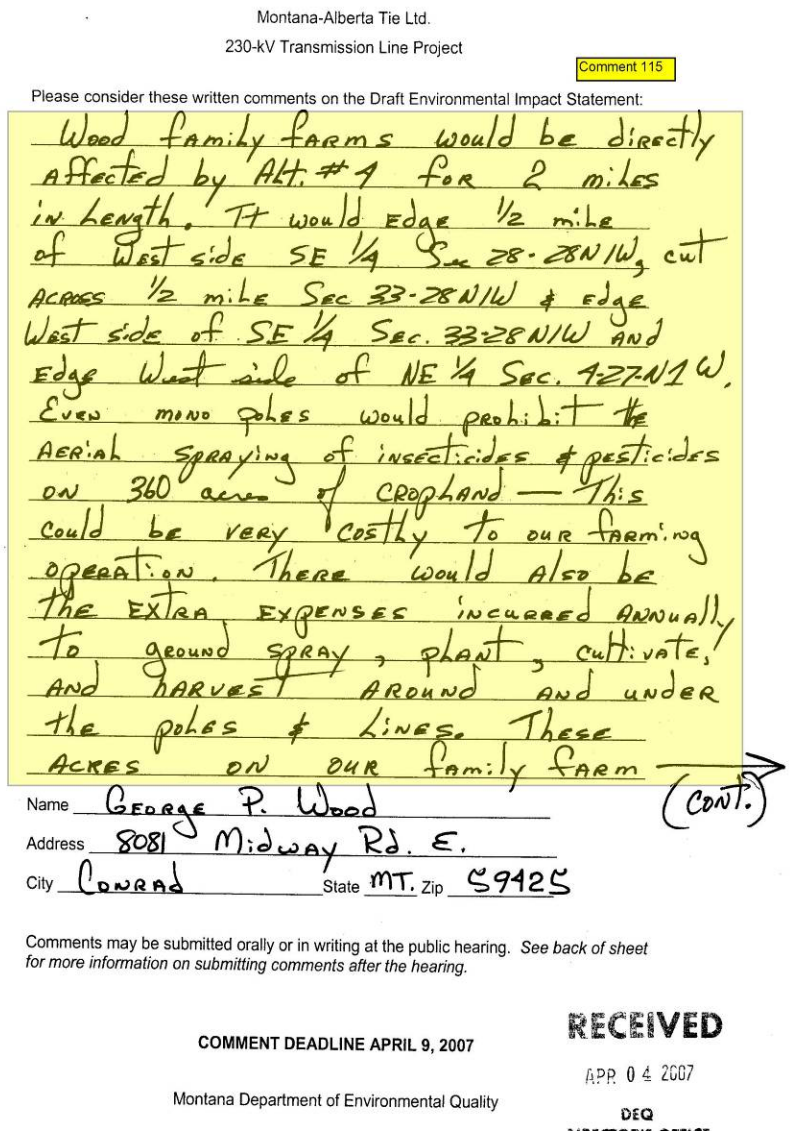
I would like to thank the Department of Environmental Quality for the time is listening to my concerns. If you have any questions for me please do not hesitate to call me at the numbers below.

Sincerely,

Douglas Banka

688 Business 15
Conrad, Montana 59425

Home phone 406-278-7829
Cell phone 406-576-7829
Fax number 406-278-3580



Montana-Alberta Tie Ltd.

230-kV Transmission Line Project

Comment 115

Please consider these written comments on the Draft Environmental Impact Statement:

Wood family farms would be directly affected by Alt. #4 for 2 miles in length. It would edge ½ mile of West side SE ¼ Sec 28-28N1W, cut across ½ mile Sec 33-28N1W & edge West side of SE ¼ Sec. 33-28N1W and edge West side of NE ¼ Sec. 4-27N1W. Even mono poles would prohibit the aerial spraying of insecticides & pesticides on 360 acres of cropland — This could be very costly to our farming operation. There would also be the extra expenses incurred annually to ground spray, plant, cultivate, and harvest around and under the poles & Lines. These acres on our family farm (cont.)

Name George P. Wood

Address 8081 Midway Rd. E.

City Conrad State MT. Zip 59425

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

COMMENT DEADLINE APRIL 9, 2007

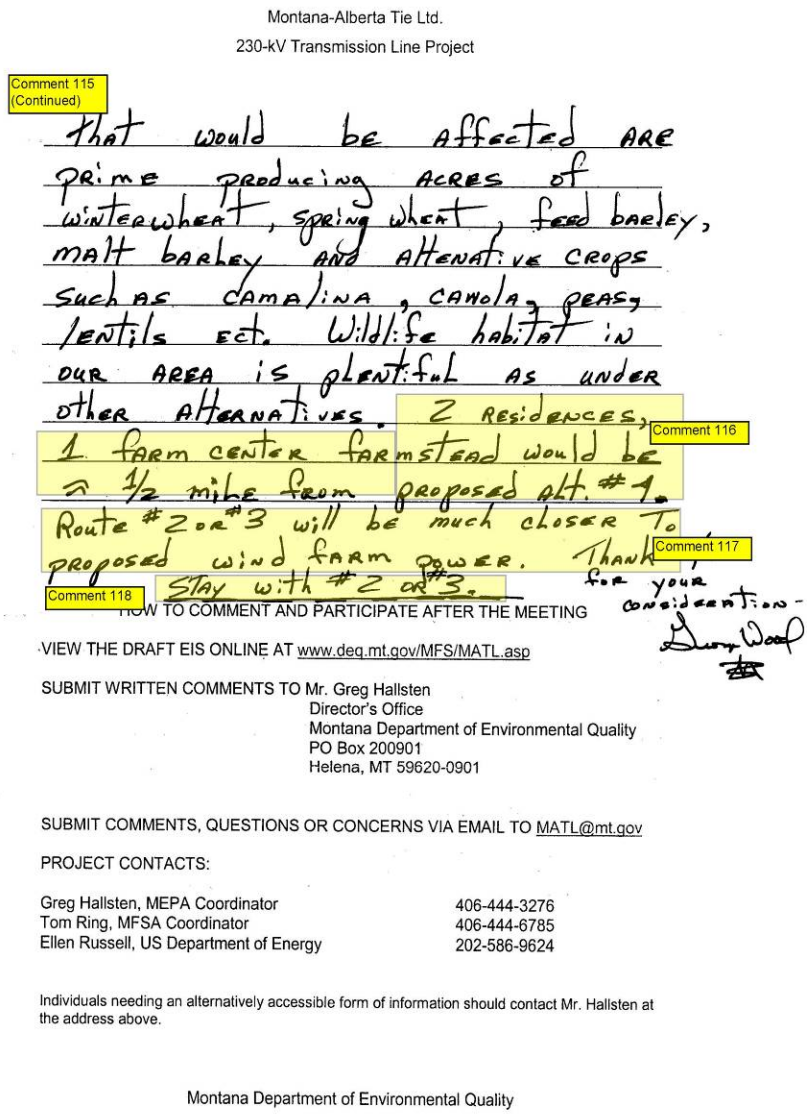
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Response 115: Aerial applicators have to consider a number of obstacles – existing power lines, trees, and towers. Aerial applicators do not charge more for spraying fields with obstructions, but they might leave small untreated areas to avoid the obstructions (HydroSolutions, July 2007, de Waal Malefyt, 1979). They would prefer the transmission line to be of single poles and the lowest conductor high enough to fly under. Applicators also mentioned a preference that the transmission line have cardinal headings of North-South/East-West (Campbell Aviation, July 2007).



Montana-Alberta Tie Ltd.

230-kV Transmission Line Project

Comment 115 (Continued)

that would be affected ARE prime producing ACRES of winterwheat, spring wheat, feed barley, malt barley AND ALTENATIVE CROPS such as camalina, canola, peas, lentils ect. Wildlife habitat in our AREA is plentiful as under other ALTERNATIVES. 2 RESIDENCES, 1 farm center farmstead would be ~ 1/2 mile from proposed alt. #1. Route #2 or #3 will be much closer To proposed wind farm power. Thank for your consideration -

Comment 116

Comment 117

Comment 118 STAY with #2 or #3.

HOW TO COMMENT AND PARTICIPATE AFTER THE MEETING

VIEW THE DRAFT EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Greg Hallsten, MEPA Coordinator	406-444-3276
Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624

Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

Montana Department of Environmental Quality

Response 116: Comment noted.

Response 117: The agencies attempted to contact potential developers of wind farms that have contracts with MATL for information about their project locations. None of the developers that propose to connect to the MATL project has indicated a willingness to release detailed plans. USFWS provided the agencies with maps outlining the extent of the McCormick Ranch Wind Park between the Marias River and Highway 2 (Figure 4.1-2 in the Draft EIS). In this area, there is no substantial difference between alternative transmission line locations; all would be near the proposed wind farm. Based on the scanty information received from prospective wind farm developers, it would be speculative to assume that one alignment would be better than another relative to the ability to interconnect to the MATL line. See the description of wind farm impacts in Chapter 4.

Response 118: Comment noted.

FROM :DAHLMAN ACRES, INC. FAX NO. :1-406-463-2446 Apr. 05 2007 11:24AM P2

4-6-07

State of Montana
Department of Environmental Quality
Fax 444-1499
Helena, MT.

Dear Sir:

Comment 119

Re: MATL Transmission Line

As a property owner who will be effected by the construction of this line, I wish to express some thoughts and concerns.

I am certain this may be the beginning of a corridor in the future. Traveling through the State of Washington I took a number of pictures of four (4) large transmission lines running parallel to each other. With such a installation this would cause a great deal of expense for the farmer operating these acres. Most farmers and ranchers are not opposed to this line, however as you are well aware, how it is constructed will effect our next generations for decades. I would respectfully request that you require the following: Single pole placement on all farm ground and on CRP, land as well. We do not know what the future brings as those acres may be farmed once again.

Wherever the line travels on farmed ground, it will impact the operating cost to the farm operation.

Thank you for your consideration to the concerns of the farmers involved.

Adam F. Dahlman.

Adam F. Dahlman
Box 343
Dutton, MT. 59433
Telephone (406)463-2444

Response 119: Comments noted.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

BRIAN SCHWEITZER, GOVERNOR
1625 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-2074
FAX: (406) 444-2684
PO BOX201601
HELENA, MONTANA 59620-1601

April 5, 2007

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Dept. Environmental Quality
Env. Management Bureau

Dept. of Environmental Quality
C/O Tom Ring
PO Box 200901
Helena, MT 59620-901

RE: DNRC Comments on MATL Draft EIS

Dear Mr. Ring:

DNRC has had an opportunity to review the proposed Montana Alberta Tie LTD (MATL) Draft EIS and the alternative routes. We have conducted a preliminary review of the state lands involved under all alternatives and do not anticipate problems with implementing any of the proposed action alternatives. Overall, Alternatives 2, 3, or 4 have only minor impacts to the management of state lands because they would affect primarily grazing lands and only minor amounts of crop or CRP land on state ownership would be impacted. If an action alternative is selected in the Record of Decision, DNRC will require MATL to submit Easement Applications for the affected state land, conduct a site specific review of each tract and require site specific mitigations for each easement application. We expect those site specific mitigations will be standard stipulations proven to be effective in minimizing potential local impacts to resources, for example, limiting operations to a specific time period to avoid conflicts with planned farming activities. The State Land Board has the ultimate authority for granting easements on state land. Below are our general comments.

- DNRC supports the use of "mono-pole" structures on CRP and cropland. And believes "mono –pole structures should be required on CRP and cropland under all alternatives. Comment 120
- DNRC supports routing the power line on field boarders, property boundaries and/or sections lines when feasible to minimize negative impacts on cropland, segmentation of land ownership and unusable corridors. Comment 121
- Construction should be timed in a manner to minimize damage to area soils, crops and/or rangelands. Comment 122
- Archeological sites on DNRC lands should be avoided when placing support structures when possible. Comment 123

Please keep us informed as to any new developments or decisions regarding this project. DNRC appreciates the opportunity to comment on this project.

Sincerely,

MARY SEXTON
Director

Response 120: Comment noted.

Response 121: Comment noted. The mileage of state land crossed on a diagonal is indicated below.

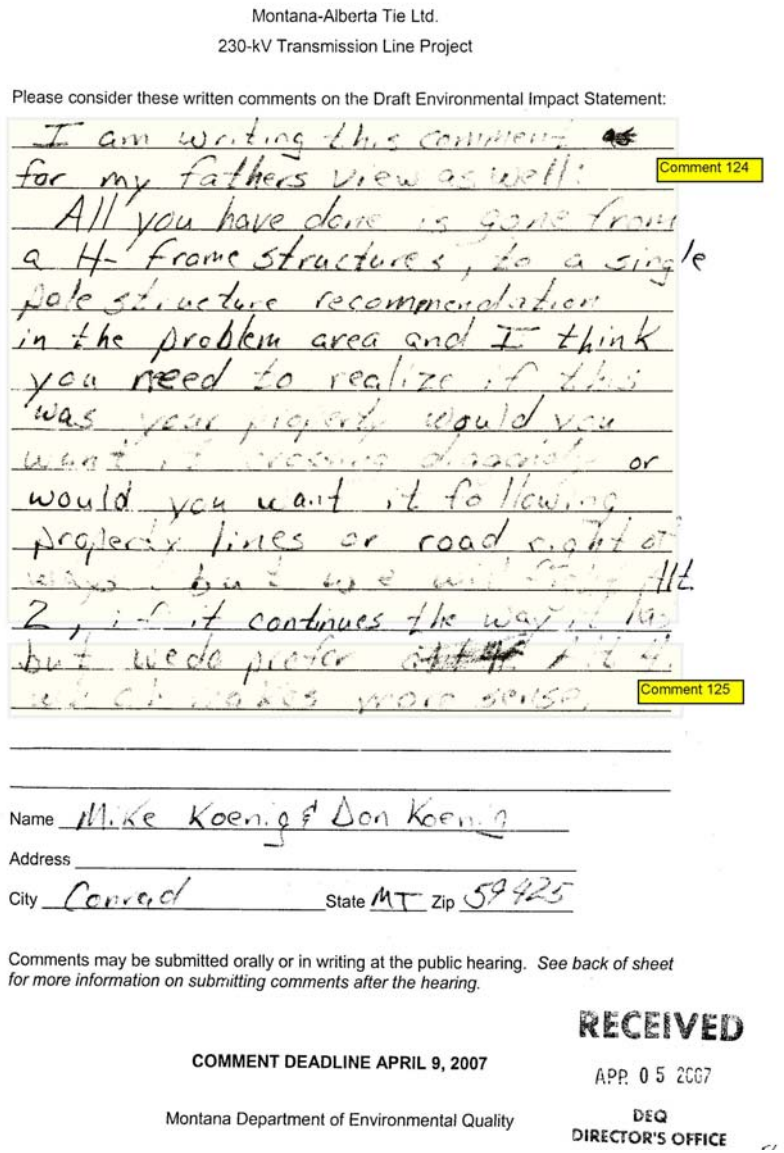
Alternative 2 Diagonal Crossing of State Land		
LOCATION	LAND USE TYPE	MILES (approximate)
T37N R5W SEC. 36	CROP	0.5
T23N R2E SEC. 23	CROP	1.1
T25N R1E SEC. 16	CROP	0.3
T25N R1E SEC. 16	CROP	0.5
T26N R1W SEC. 36	CROP	1.1
T31N R5W SEC. 2	RANGE	0.5
T32N R5W SEC. 16	RANGE	1.08
T35N R5W SEC. 16	RANGE	0.9
T23N R2E SEC. 25	RANGE	0.5
T23N R2E SEC. 22	RANGE	0.6
T23N R2E SEC. 16	RANGE	0.8
T28N R3W SEC. 18	RANGE	0.3

Alternative 3 Diagonal Crossing of State Land		
LOCATION	LAND USE TYPE	MILES (approximate)
T23N R3E SEC. 15	CROP	0.15
T29N R3W SEC. 31	CROP	0.3
T29N R4W SEC. 36	CROP	0.5
T28N R3W SEC. 18	RANGE	0.2
T29N R4W SEC. 36	RANGE	0.1
T32N R5W SEC. 16	RANGE	1.1

Alternative 4 Diagonal Crossing of State Land		
LOCATION	LAND USE TYPE	MILES (approximate)
T25N R1E SEC. 16	CROP	0.3
T25N R1E SEC. 16	CROP	0.5
T25N R1W SEC. 3	CROP	1.3
T29N R2W SEC. 36	CROP	0.1
T37N R5W SEC. 36	CROP	0.5
T23N R2E SEC. 33	RANGE	0.5
T29N R2W SEC. 36	RANGE	0.09
T29N R3W SEC. 16	RANGE	0.55
T31N R5W SEC. 2	RANGE	0.5
T32N R5W SEC. 16	RANGE	1.08
T35N R5W SEC. 16	RANGE	0.9

Response 122: Comment noted.

Response 123: Known archeological features have been avoided on DNRC lands. On undisturbed areas where no ground survey has been conducted, the agencies would require that the areas be surveyed and that sensitive features be avoided where possible (see Appendix F, items 2.12.1 through 2.12.3 and Appendix A of Appendix F for items pertaining to cultural resources).



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

I am writing this comment for my fathers view as well:

Comment 124

All you have done is gone from a H- frame structures, to a single pole structure recommendation in the problem area and I think you need to realize if this was your property would you want it crossing directly or would you want it following property lines or road right of ways. But we will only fill 2, if it continues the way it is, but we do prefer either H-frame or single pole, we can agree more on.

Comment 125

Name Mike Koenig & Don Koenig

Address

City Conrad State MT Zip 59425

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

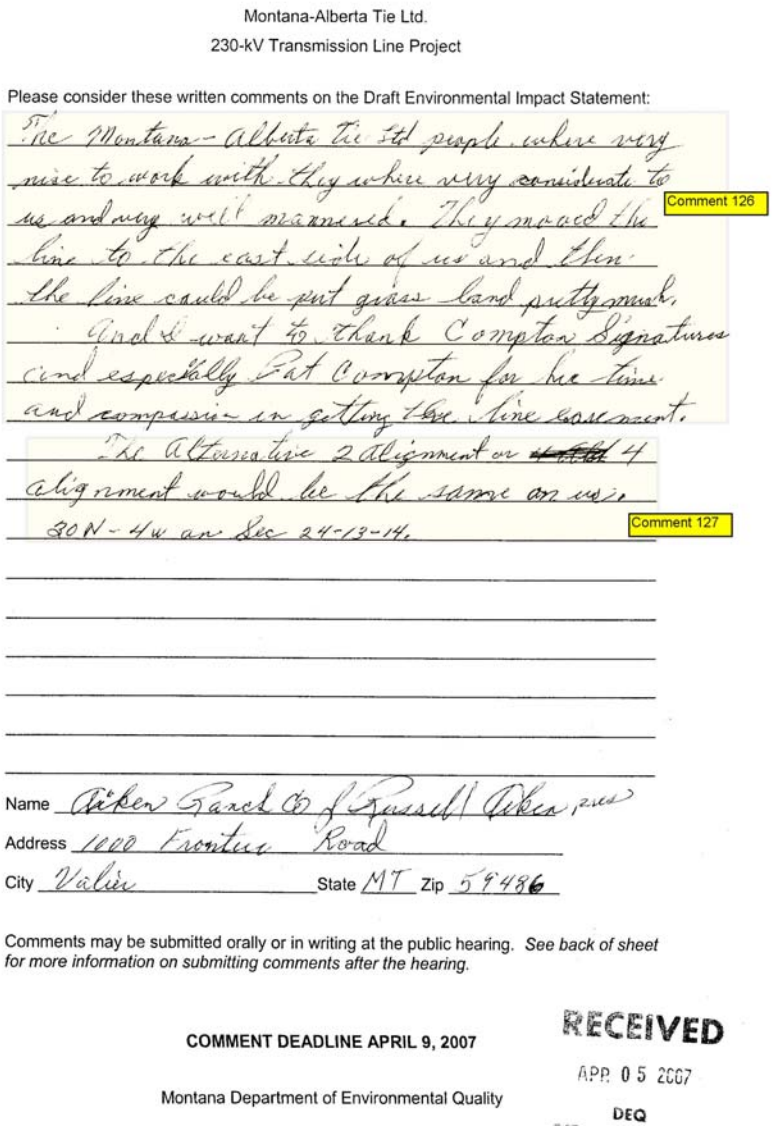
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Montana Department of Environmental Quality

Response 124: Comment noted.

Response 125: Comment noted.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

The Montana-Alberta Tie Ltd people where very nice to work with. They where very considerate to us and very well mannered. They moved the line to the east side of us and then the line could be put grass land pretty much. And I want to thank Compton Signatures and especially Pat Compton for her time and compassion in getting the line easement. Comment 126

The Alternative 2 Alignment or ~~Alternate~~ 4 alignment would be the same on us. 30N-4W on Sec 24-13-14. Comment 127

Name Aiken Ranch Co / Russell Aiken, pres
Address 1000 Frontier Road
City Valier State MT Zip 59486

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

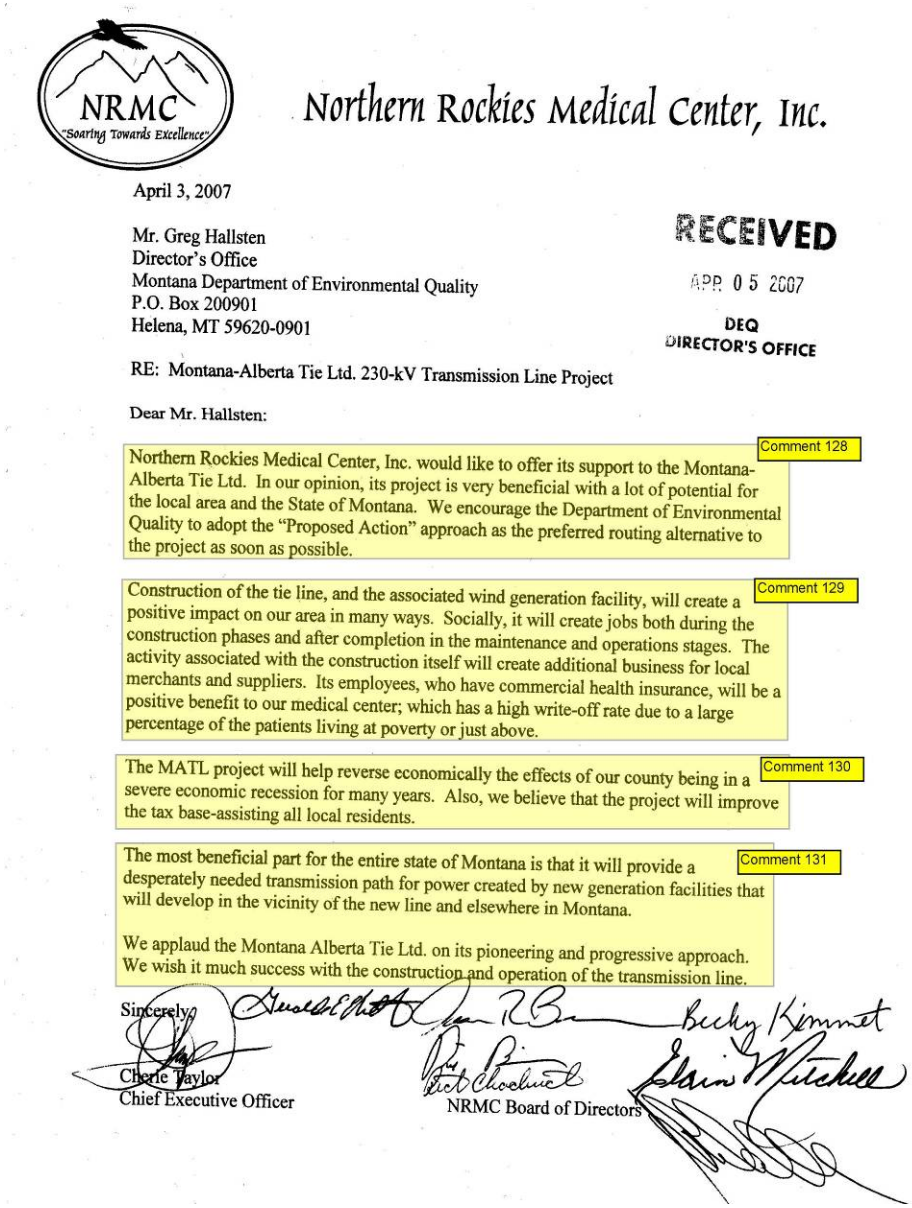
COMMENT DEADLINE APRIL 9, 2007

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Response 126: Comment noted.

Response 127: Comment noted.



Northern Rockies Medical Center, Inc.

April 3, 2007

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DIRECTOR'S OFFICE

Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

RE: Montana-Alberta Tie Ltd. 230-kV Transmission Line Project

Dear Mr. Hallsten:

Comment 128

Northern Rockies Medical Center, Inc. would like to offer its support to the Montana-Alberta Tie Ltd. In our opinion, its project is very beneficial with a lot of potential for the local area and the State of Montana. We encourage the Department of Environmental Quality to adopt the "Proposed Action" approach as the preferred routing alternative to the project as soon as possible.

Comment 129

Construction of the tie line, and the associated wind generation facility, will create a positive impact on our area in many ways. Socially, it will create jobs both during the construction phases and after completion in the maintenance and operations stages. The activity associated with the construction itself will create additional business for local merchants and suppliers. Its employees, who have commercial health insurance, will be a positive benefit to our medical center; which has a high write-off rate due to a large percentage of the patients living at poverty or just above.

Comment 130

The MATL project will help reverse economically the effects of our county being in a severe economic recession for many years. Also, we believe that the project will improve the tax base-assisting all local residents.

Comment 131

The most beneficial part for the entire state of Montana is that it will provide a desperately needed transmission path for power created by new generation facilities that will develop in the vicinity of the new line and elsewhere in Montana.

We applaud the Montana Alberta Tie Ltd. on its pioneering and progressive approach. We wish it much success with the construction and operation of the transmission line.

Sincerely,

Cherie Taylor
Chief Executive Officer

NRMC Board of Directors

Becky Kimmet

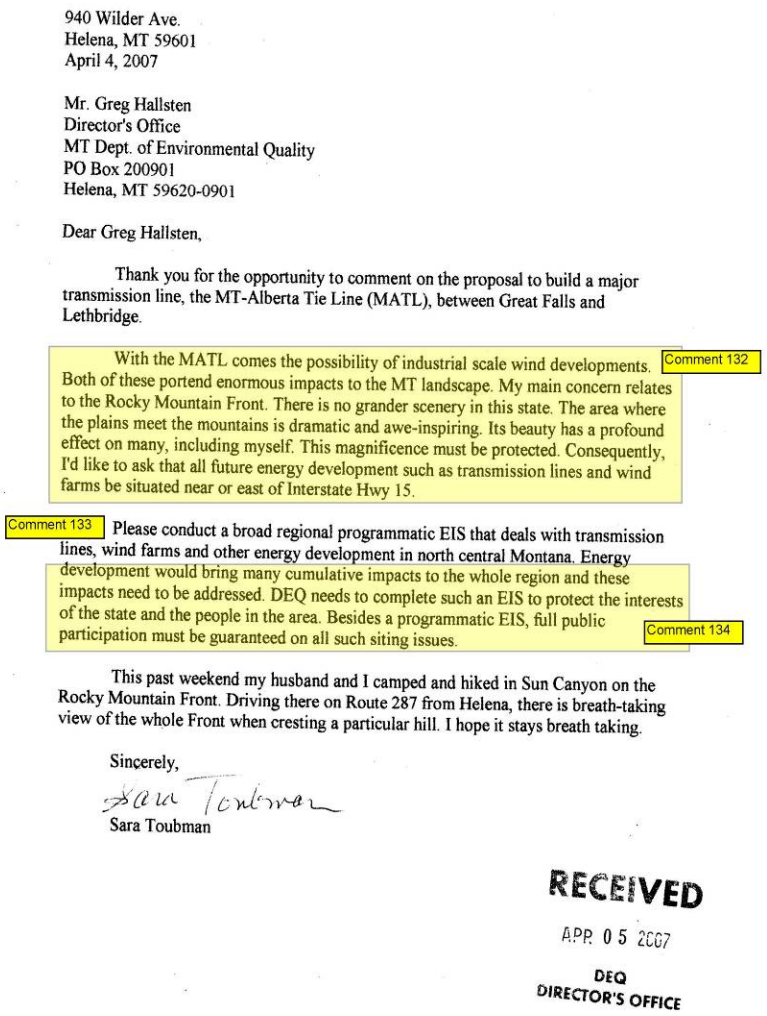
Elaine Mitchell

Response 128: Comment noted.

Response 129: Comment noted.

Response 130: Comment noted.

Response 131: Comment noted.



940 Wilder Ave.
Helena, MT 59601
April 4, 2007

Mr. Greg Hallsten
Director's Office
MT Dept. of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Dear Greg Hallsten,

Thank you for the opportunity to comment on the proposal to build a major transmission line, the MT-Alberta Tie Line (MATL), between Great Falls and Lethbridge.

Comment 132

With the MATL comes the possibility of industrial scale wind developments. Both of these portend enormous impacts to the MT landscape. My main concern relates to the Rocky Mountain Front. There is no grander scenery in this state. The area where the plains meet the mountains is dramatic and awe-inspiring. Its beauty has a profound effect on many, including myself. This magnificence must be protected. Consequently, I'd like to ask that all future energy development such as transmission lines and wind farms be situated near or east of Interstate Hwy 15.

Comment 133

Please conduct a broad regional programmatic EIS that deals with transmission lines, wind farms and other energy development in north central Montana. Energy development would bring many cumulative impacts to the whole region and these impacts need to be addressed. DEQ needs to complete such an EIS to protect the interests of the state and the people in the area. Besides a programmatic EIS, full public participation must be guaranteed on all such siting issues.

Comment 134

This past weekend my husband and I camped and hiked in Sun Canyon on the Rocky Mountain Front. Driving there on Route 287 from Helena, there is breath-taking view of the whole Front when cresting a particular hill. I hope it stays breath taking.

Sincerely,

Sara Toubman

Sara Toubman

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Response 132: See response to comment 28, Section 3.15, and the revised discussion of impacts in Section4.16 for a description of potential visual impacts associated with wind farm development. In general, the Rocky Mountain Front west of Choteau is located more than 80 miles from the proposed MATL line. If wind farm development were located 30 miles from the MATL line, it would then be about 50 miles away from the Front and beyond the range of visibility.

Response 133: See response to comment 24.

Response 134: See the revised discussion of impacts in Chapter 4. See response to comment 23 for a discussion of public participation in siting of wind farm developments where the agencies have no regulatory authority.

PO Box 3
Dutton MT 59433
April 4, 2007

Mr. Greg Hallsten
Director's Office
Mt. Dept. of Environmental Quality
PO Box 200901
Helena MT 59620-0901

Dear Mr. Hallsten:

The MATL transmission line is proposed to be built to make a financial gain for a private company at the expense of Montana and the Montana farmers. The line is to run to a substation on the north side of Great Falls.

Alberta has a 23% surplus in electricity and needs a market for it. Northwest Energy has a surplus and has no plans to build any new lines until the year 2012. If the MATL line is built, there is no place for the electricity to go. Comment 135

After reviewing the alternatives, it appears the only thing this has done is to turn neighbors against neighbors. Comment 136

The combination of these alternatives to form one line parallel (within 250 feet) to the existing line with single poles for everyone. This should be from east of Dutton to the south side of Conrad. This would stop the building of new corridors and make it possible for the poles to be next to each other. MATL said, "the could build it within 50 feet of the existing line." Comment 137

The first information, in writing, I received on this project wasn't from the Department of Energy or MATL, but from the lawyers office in Helena. Comment 138

MATL wishes to build this line with 3 ½% money, double poles, and receive a 75% tax write-off. Why don't they just ask for the State? Comment 139

It would be wrong to build this at the expense of the farmers and ranchers. Comment 140

MATL also wants to be able to increase the power 25% to 800mw at no additional income to the land owners. The same goes for the fiber optic line, where they are looking at selling off part of it to others. Comment 141

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Response 135: Alberta typically imports more energy than it exports—for more discussion about Alberta's electricity situation, see Section 3.17 and response to comment 33b-d. The Western grid is an interconnected whole and there is capacity at certain times of the year on all lines exiting both Montana and Alberta. At other times of the year, there is little or no excess capacity on existing lines. Thus, power from generation built as a result of MATL would, at certain times of the year, have several options in terms of how to leave the Montana service area to serve other markets. At other times of the year, that power could be constrained in terms of leaving the Montana control areas.

Response 136: Comment noted. The agencies have worked with several groups of landowners and most people have been willing to work with the agencies and each other to arrive at solutions for line location.

Response 137: While this option would keep lines in a single corridor, it would not be a location that would meet many of the preferred location criteria under rules implementing the Major Facility Siting Act (see Section 2.1).

Response 138: Comment noted.

Response 139: Comment noted.

Response 140: Comment noted.

It says in the DEQ impact study that MATL will put no poles in the 100 year flood plain. I don't know how they can accomplish this. The flood of 1964 had the Teton River a mile wide. Comment 142

The only mention of money from MATL was $275.00 for the easement. This is a price from prior to the 1940's. One would be foolish to accept this. Comment 143

It is wrong to expect Montana consumers to pay for mitigation in order for the MATL line to have a reliable connection to the electrical transmission system. Comment 144

It is not right to give some of the land owners single poles and not others. This is discrimination to the land owners, where one has irrigated land, another has dry land, and the third has pasture. Comment 145

Alternate (3) is the best for the Teton River area. If this is not possible, the line should cross the Teton River exactly in the northwest corner of the section of state land. There is a graded road on the State of Montana land on the south side of the river. This road is wide enough for a 24' combine to travel from the river bottom to the hill top. Comment 146

Again, the line should be east of the NW Energy line. This will have less impact on all the home owners from east of Dutton to south of Conrad. Comment 147

Avoid discrimination – single poles for all. Comment 148

Visual impact of Alternate (4) on the Teton River is devastating for view, recreation, and airplanes. Comment 149

Don't believe a private company qualifies for eminent domain. Comment 150

How did a 230kv line become an 800mw line? Comment 151

Sincerely,

Robert J. Carney

Response 141: Comment noted. MATL has indicated that although the current proposal is to build a line that could handle 300 MW flowing from north to south and south to north, the conductors proposed could be physically able to handle additional power in the future, though line losses may be unacceptably high (see the responses to comments 346). Easement payments are typically not dependent upon the amount of power that would flow through a line. Similarly, easement payments for a transmission line are typically not based on the number of fiber optic strands in a cable.

Response 142: Comment noted. However, the text does not say that no poles would be located in the 100 –year floodplains. Rather the text in Section 3.6 indicates that structures would not be located below the normal high-water mark and that high hazard areas of floodplains would be avoided.

Response 143: Comment noted. See Section 3.13 for further discussion of the costs associated with farming around structures.

Response 144: Costs of mitigating impacts would be borne by MATL because MATL is proposing to build the line. Only if NorthWestern Energy would buy power from the MATL line would any mitigation costs show up in the transmission portion of the bill for Montana customers.

Response 145: Comment noted. Single poles are seen as a way to reduce but not eliminate impacts to farming activities. Because single poles are more expensive than H-frames, in developing the alternatives the agencies tried to limit the use of single poles to situations where they would reduce impacts, principally on cultivated land. Presence of H-frame structures does not interfere substantially with livestock use on range and pasture land. Alternative 2, as proposed by MATL, would use 53 miles of single poles. Alternative 2 would not include single poles on the other 38.4 miles of cropland and CRP land crossed. Alternative 4 was developed by the agencies and would use single poles wherever cropland and CRP land are crossed. The agencies regret that some people feel they were treated unfairly. If Alternative 2 is finally chosen for permitting, the distribution could be altered in the certificate, or the requirement for monopoles could be rescinded by the agencies.

Response 146: Comment noted. The agencies examined the suggested alternative crossing of the Teton River (see Figure 2.6-3). This alignment would cross a low elevation bend along the Teton River and would be more prone to flood damage than the modified Alternative 2 which would be located a greater distance above the river. The suggested alternative also would cross a landslide feature where the river's location at the toe of the slope makes long-term stability of the slope questionable. Note that the length and location of the crossing indicated in the comment would necessitate a structure being located somewhere on this slope since the landslide is too long to span. Like Alternative 2 and modified Alternative 2, some road building would be necessary to access at least one structure on the suggested alternative.

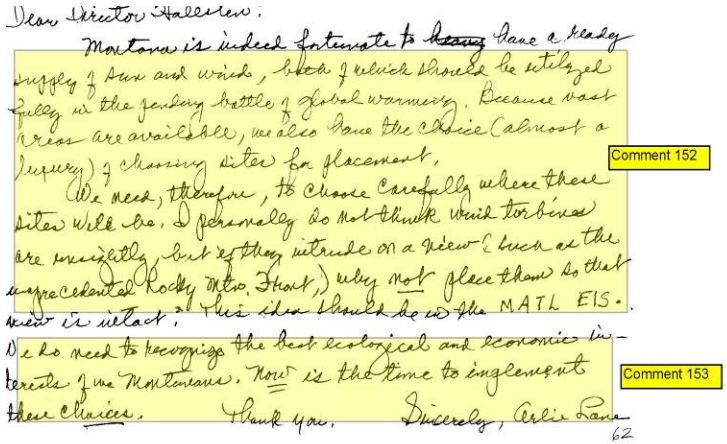
Response 147: Comment noted. However, such an alternative would be located close to a landing strip, would cross farm fields diagonally, and cause farm operators to work around two diagonal lines rather than one. See response to comment 37 as well.

Response 148: Comment noted. See response to comment 145.

Response 149: The draft EIS notes in Section 3.15 that major visual impact would result where the transmission line would cross an area of Class B (above average) scenic quality such as the alluvial corridor of the Teton River. This river crossing on state land would be marked to increase visibility to low flying airplanes.

Alternative 4 would be located about one mile west of Alternative 3 at the Teton River crossing. This portion of the river corridor is used for dispersed recreation and both crossings would be highly visible to people recreating along the river.

Response 150: See response to comment 8.


Dear Director Hallerew:

Montana is indeed fortunate to ~~have~~ have a ready supply of sun and wind, both of which should be utilized fully in the pending battle of global warming. Because vast areas are available, we also have the choice (almost a luxury) of choosing sites for placement.

Comment 152

We need, therefore, to choose carefully where these sites will be. I personally do not think wind turbines are unsightly, but if they intrude on a view (such as the unprecedented Rocky Mtn. Front,) why not place them so that view is intact? This idea should be in the MATL EIS.

We do need to recognize the best ecological and economic interests of the Montanans. Now is the time to implement these choices. Thank you. Sincerely, Arlis Lane

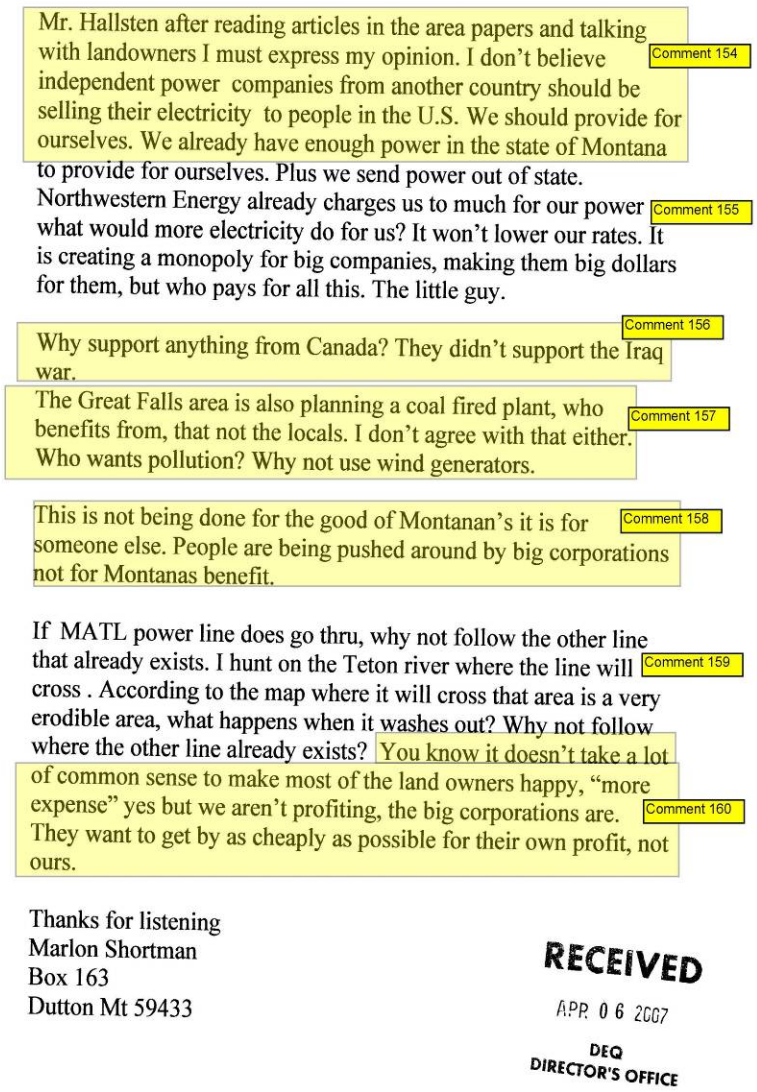
Comment 153

62

Response 151: The proposed line would be operated at 230 kilovolts. It is proposed to carry up to 300MW in each direction. MATL has indicated that the proposed conductor could handle up to 600MW in each direction while still being operated at 230 kV, but this would require upgrading of substation equipment and line losses would be roughly 20 percent or about 115MW (MATL 2007). The explanation for the mention of a 400MW potential loading is that if the MATL line would be loaded to 300MW, an extra contingency load of up to 100MW must be carried by the line to support existing power facilities in the area in case of outages on other transmission lines (HDR 2007). Also see comment 346.

Response 152: The idea of placing wind farms in a manner that would not intrude on views of the Rocky Mountain Front is noted. Note however, the agencies do not have regulatory authority over the location of wind farms and cannot dictate their placement. Also see the description of potential cumulative wind farm impacts in Chapter 4.

Response 153: Comment noted.



Mr. Hallsten after reading articles in the area papers and talking with landowners I must express my opinion. I don't believe independent power companies from another country should be selling their electricity to people in the U.S. We should provide for ourselves. We already have enough power in the state of Montana to provide for ourselves. Plus we send power out of state. Northwestern Energy already charges us to much for our power what would more electricity do for us? It won't lower our rates. It is creating a monopoly for big companies, making them big dollars for them, but who pays for all this. The little guy.

Comment 154

Comment 155

Why support anything from Canada? They didn't support the Iraq war.

Comment 156

The Great Falls area is also planning a coal fired plant, who benefits from, that not the locals. I don't agree with that either. Who wants pollution? Why not use wind generators.

Comment 157

This is not being done for the good of Montanan's it is for someone else. People are being pushed around by big corporations not for Montanas benefit.

Comment 158

If MATL power line does go thru, why not follow the other line that already exists. I hunt on the Teton river where the line will cross . According to the map where it will cross that area is a very erodible area, what happens when it washes out? Why not follow where the other line already exists? You know it doesn't take a lot of common sense to make most of the land owners happy, "more expense" yes but we aren't profiting, the big corporations are. They want to get by as cheaply as possible for their own profit, not ours.

Comment 159

Comment 160

Thanks for listening
Marlon Shortman
Box 163
Dutton Mt 59433

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Response 154: Comment noted.

Response 155: Electricity generated as a result of MATL would be sold on the power market, and not necessarily to Montana customers. See response to comment 33 for further discussion of potential affects on prices. The factors that affect electricity prices in Montana are complex and numerous.

Response 156: Comment noted.

Response 157: The coal-fired plant proposed near Great Falls would benefit a group of electric cooperatives from south central Montana as well as the City of Great Falls. The opinion regarding pollution from this plant is noted. Wind generators do not provide firm baseload power similar to that which can be produced by a conventional coal-fired plant. However some developers are looking into the possibility of converting coal into diesel fuel and using this diesel fuel in conventional diesel powered generators as a way to firm wind generation.

Response 158: Comment noted.

Tom King HCD/EMB

3 April 2007

Mr. Tom Ring, MFSA Coordinator
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Dear Mr. Ring,

Comment 161

First again I would like to thank you as I did in person at the DEQ/MATL meeting in Cut Bank last week. You are the only person in this whole situation that took the time to not only listen to our concerns involving MATL but also implemented a plan to relieve our concerns.

We support DEQ's alternative route that would bypass the Karcher/Hoof properties.

Sincerely,

Joseph J. Karcher Jr. & Diane C. Karcher
PO Box 354
Cut Bank, MT 59427

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Env. Management Bureau

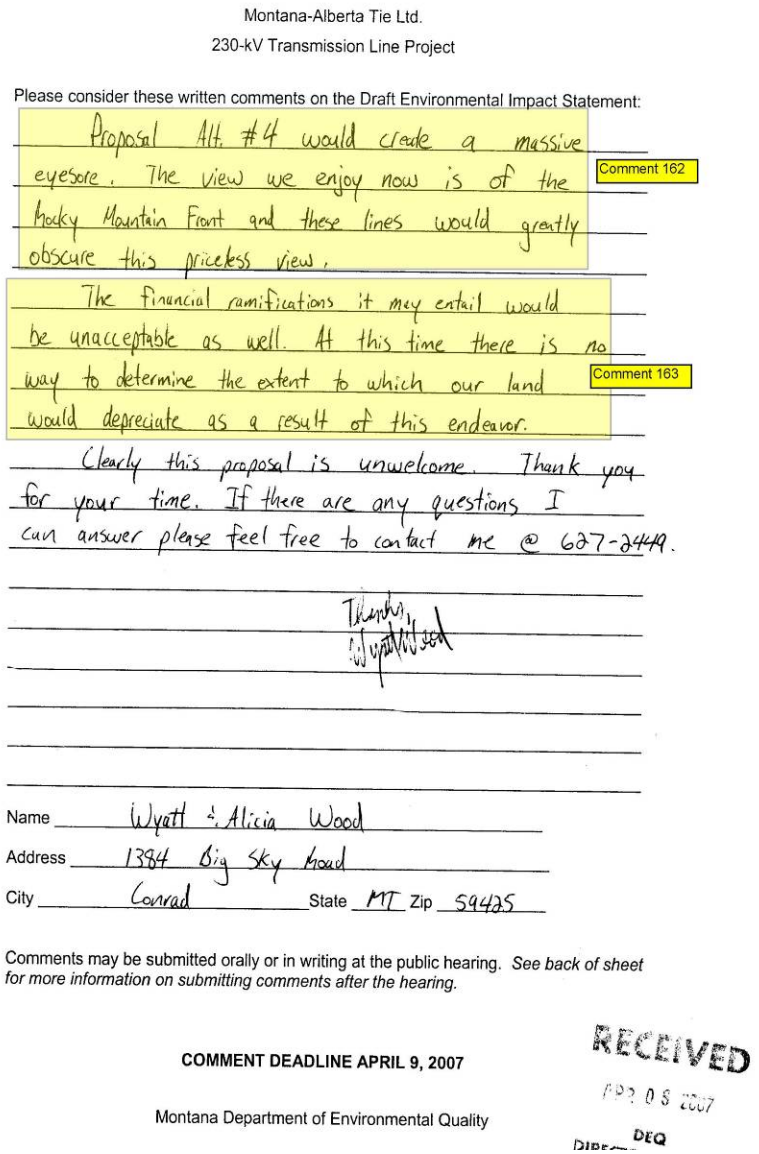
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Response 159: Should a line structure be lost due to erosion, the line would be out of service until the structure is replaced or repaired. The existing NorthWestern Energy line was not paralleled due to concerns with having to farm around two sets of structures on either side of the Teton River crossing, not the Teton crossing itself. Lastly, the Major Facility Siting Act contains a requirement in 75-20-301(1)(h) "that the use of public lands for location of the facility was evaluated and public lands were selected whenever their use is as economically practicable as the use of private lands." The proposed crossing would be located on a state section while the crossing of the Teton River parallel to NorthWestern Energy's existing transmission line would be located on private land on each side of the river. Comment noted.

Response 160: Comment noted.

Response 161: Comment noted.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

Proposal Alt. #4 would create a massive eyesore. The view we enjoy now is of the Rocky Mountain Front and these lines would greatly obscure this priceless view.

Comment 162

The financial ramifications it may entail would be unacceptable as well. At this time there is no way to determine the extent to which our land would depreciate as a result of this endeavor.

Comment 163

Clearly this proposal is unwelcome. Thank you for your time. If there are any questions I can answer please feel free to contact me @ 627-2449.

Thanks,
Wyatt Wood

Name Wyatt & Alicia Wood
Address 1384 Big Sky Road
City Conrad State MT Zip 59425

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

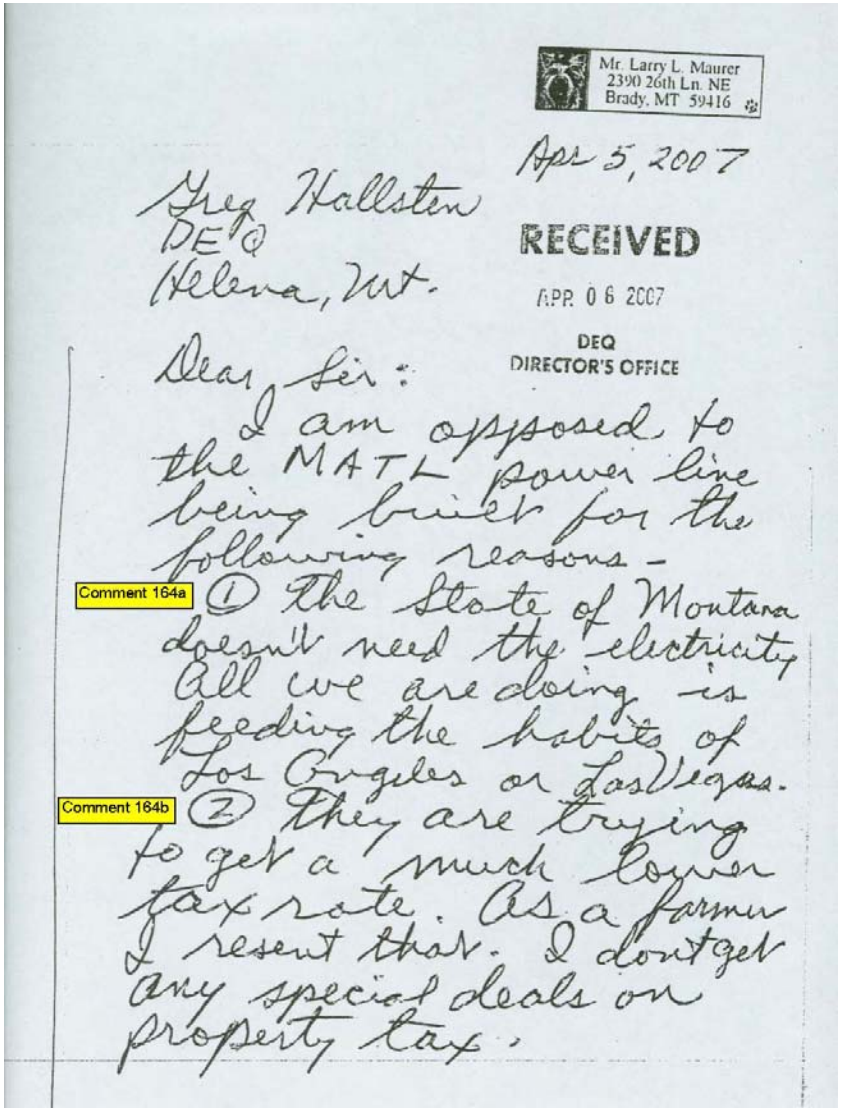
COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

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Response 162: Comment noted. Although some area residents would have the transmission line present in their views of the Rocky Mountain Front, Alternative 4 does the best job overall of avoiding proximity to residences, with 67 residences within ½ mile of the line. Alternative 2 would have 77 residences within ½ mile, and Alternative 3 would have 94 residences. While both the transmission line and wind turbines would introduce strong linear elements into viewed landscapes, the structures are typically not clustered sufficiently to conceal or hide surrounding mountain ranges (see the pictures of the Judith Gap wind farm in the revised discussion of impacts in Sections 4.16).

Response 163: Comment noted. Transmission lines could adversely affect land values, and that would be a cost to Montanans. Existing evidence suggests that land values are not significantly affected by transmission lines. See the revised discussion on land values in Section 3.13.



Mr. Larry L. Maurer
2390 26th Ln. NE
Brady, MT 59416

Apr 5, 2007

Greg Hallsten
DEQ
Helena, Mt.

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DIRECTOR'S OFFICE

Dear Sir:

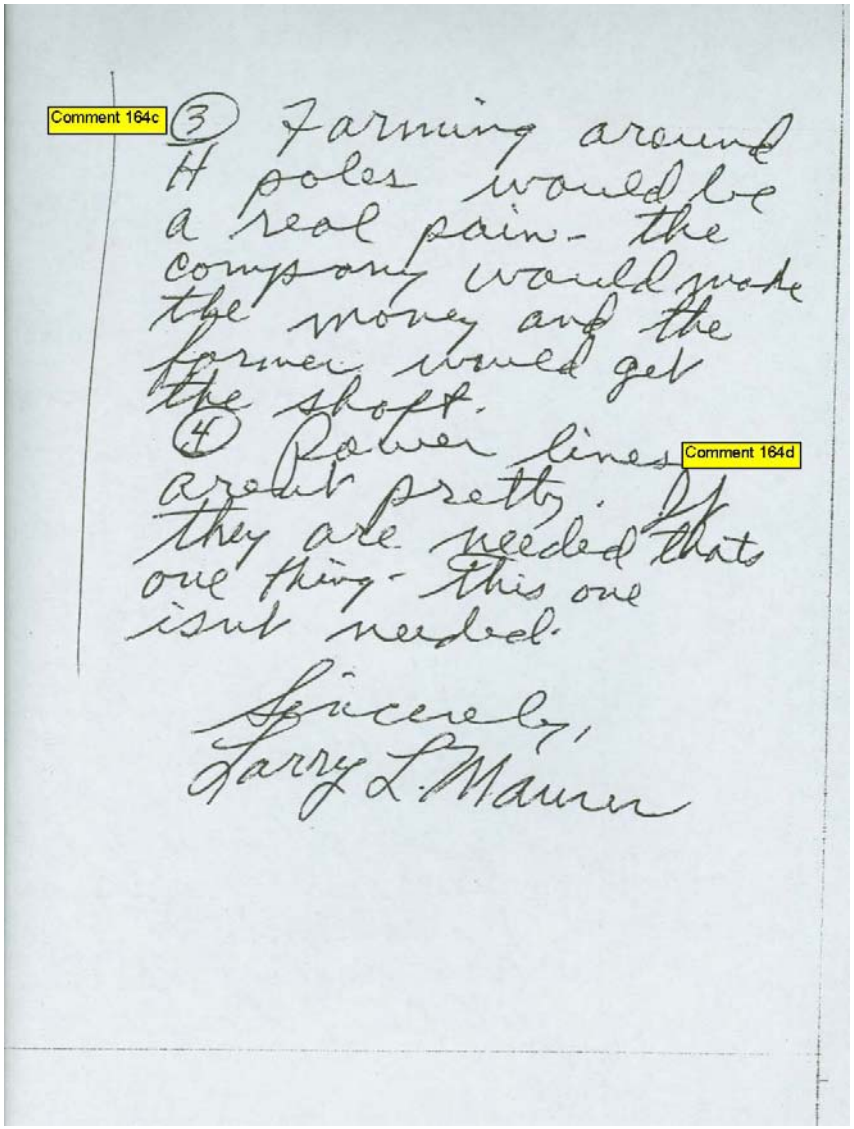
I am opposed to the MATL power line being built for the following reasons -

Comment 164a (1) The State of Montana doesn't need the electricity. All we are doing is feeding the habits of Los Angeles or Las Vegas.

Comment 164b (2) They are trying to get a much lower tax rate. As a farmer I resent that. I don't get any special deals on property tax.

Response 164a: Comment noted. The benefits and costs of MATL to Montana are discussed in Sections 1.2 and 3.13. Potential impacts to Montana customers are discussed in Section 3.13. The energy generated as a result of this line would be sold on the open energy market.

Response 164b: Recent passage of legislation will likely result in lower tax rates for MATL. This legislation also included tax reductions for landowners whose land is crossed by new transmission lines.



Response 164c: Comment noted.

Response 164d: Comment noted. The agencies note that transmission lines could adversely affect land and visual values, and that would be a cost to Montanans. See the discussion on visual impacts in Section 3.15. See the revised discussion on land values in Section 3.13.

04/06/2007

To: Mr. Richard Opper, Director
Mr. Tom Ring
Mr. Greg Hallsten
Dept. of Environmental Quality
P. O. Box 200901
Helena, MT 59620-0901

RECEIVED
APR 09 2007
Dept. Environmental Quality
Env. Management Bureau

Dear Sirs:

I would like to address the wind farm issue from several angles:

1) As a concerned resident of Glacier County.
2) As a hiker.
3) As a concerned parent.
4) As a Realtor.
5) As a student of Montana history.

Having grown up on a farm in Teton County, Montana, just north of Great Falls, I find myself being more and more concerned about the MATL line which will run from Great Falls to the Canadian border. I have called Glacier County my home for over 30 years so I am very familiar with both areas that will be impacted by these proposed wind farms.

Comment 165

Initially, I found myself excited that someone was going to finally utilize the wind power in Montana. But the more and more I looked into it, I found that these 400' towers have downsides and that most, if not all of the energy would be leaving the Big Sky Country to help light Las Vegas. Plus these huge towers would be also at the Eastern gateway to Glacier National Park. I hike in Glacier National Park and do not want to climb up to a vista of wind farm towers.

As a Realtor, I also question what this will do to adjoining and area land values. Would you want one next to you? I would not. I suspect that wind farms DO NOT increase the land around them. Has anyone looked at what values are now in the Judith Gap area? That should be something else that is checked BEFORE charging ahead with the MATL line or the wind farms.

Comment 166

I had the privilege of taking Montana History from K. Ross Toole at the U of M in Missoula. He said over and over again that Montanans repeatedly made the mistake of being used by outside interests. I understand that the power from these wind farms may not even stay in the state and may even go to light up Las Vegas. Are we again repeating history and doing something that we will regret and that will diminish Montana for the benefit of someone else's pocketbook? Once these wind farms are in place, they will be here forever so I believe we Montanans should be absolutely sure that this is what we want and know ALL of the impacts it will have on this area.

Comment 167

Comment 168

So, I believe a lot of thought and research needs to be put into this decision BEFORE my children and grandchildren wish we had.

Regards,



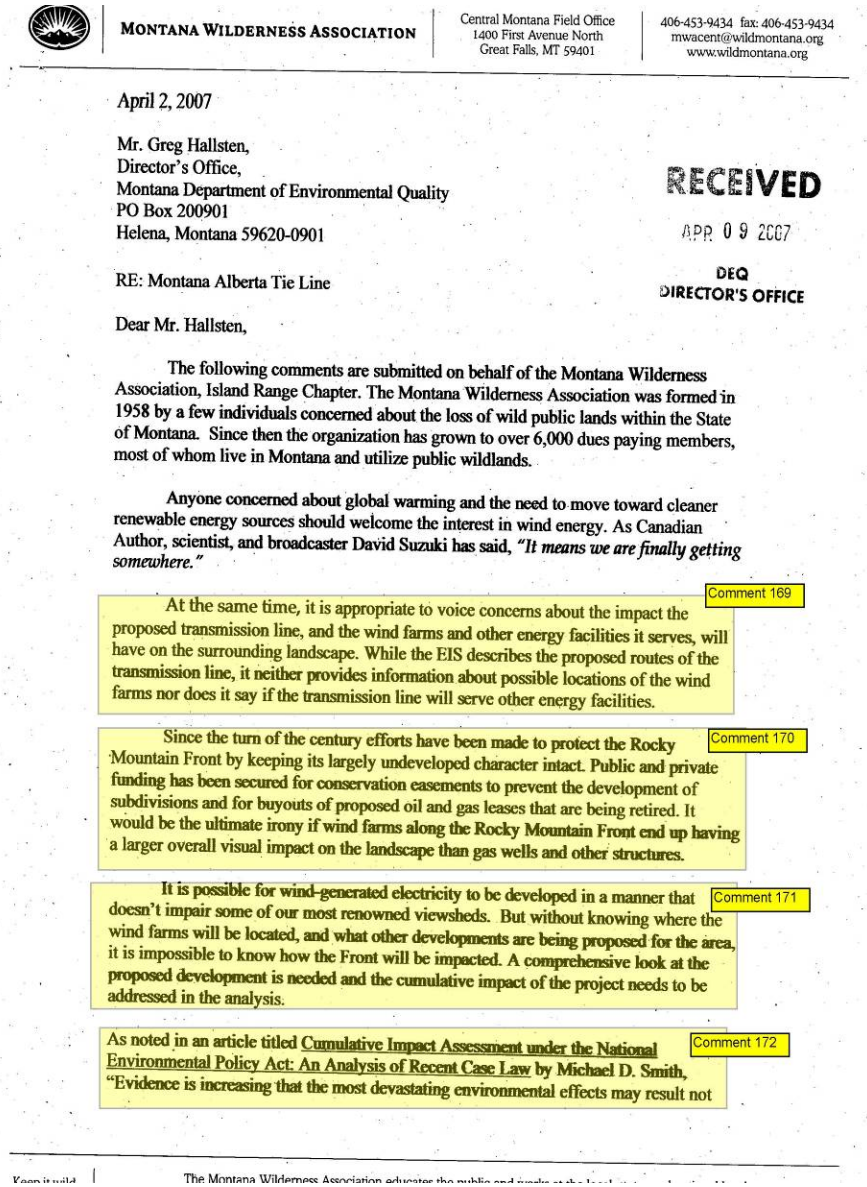
Colleen Erickson
P. O. Box 55
East Glacier Park, MT 59434
406-226-5555

Response 165: See response to comments 28 and 29and the revised discussion of cumulative impacts in Chapter 4. The eastern edge of Glacier National Park lies more than 50 miles west of the MATL transmission line. If wind farms were located 30 miles from the MATL line, they would be at the limit of visibility for viewpoints within Glacier National Park.

Response 166: See the revised cumulative socioeconomic impacts portion of Chapter 4 for a discussion of property values in relation to wind farms.

Response 167: See response to comment 168.

Response 168: It is unclear how long wind farms would be operated. See the discussion of impacts in Chapter 4.



MONTANA WILDERNESS ASSOCIATION | Central Montana Field Office, 1400 First Avenue North, Great Falls, MT 59401 | 406-453-9434 fax: 406-453-9434, mwacent@wildmontana.org, www.wildmontana.org

April 2, 2007

Mr. Greg Hallsten,
Director's Office,
Montana Department of Environmental Quality
PO Box 200901
Helena, Montana 59620-0901

RECEIVED
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DIRECTOR'S OFFICE

RE: Montana Alberta Tie Line

Dear Mr. Hallsten,

The following comments are submitted on behalf of the Montana Wilderness Association, Island Range Chapter. The Montana Wilderness Association was formed in 1958 by a few individuals concerned about the loss of wild public lands within the State of Montana. Since then the organization has grown to over 6,000 dues paying members, most of whom live in Montana and utilize public wildlands.

Anyone concerned about global warming and the need to move toward cleaner renewable energy sources should welcome the interest in wind energy. As Canadian Author, scientist, and broadcaster David Suzuki has said, *"It means we are finally getting somewhere."*

Comment 169

At the same time, it is appropriate to voice concerns about the impact the proposed transmission line, and the wind farms and other energy facilities it serves, will have on the surrounding landscape. While the EIS describes the proposed routes of the transmission line, it neither provides information about possible locations of the wind farms nor does it say if the transmission line will serve other energy facilities.

Comment 170

Since the turn of the century efforts have been made to protect the Rocky Mountain Front by keeping its largely undeveloped character intact. Public and private funding has been secured for conservation easements to prevent the development of subdivisions and for buyouts of proposed oil and gas leases that are being retired. It would be the ultimate irony if wind farms along the Rocky Mountain Front end up having a larger overall visual impact on the landscape than gas wells and other structures.

Comment 171

It is possible for wind-generated electricity to be developed in a manner that doesn't impair some of our most renowned viewsheds. But without knowing where the wind farms will be located, and what other developments are being proposed for the area, it is impossible to know how the Front will be impacted. A comprehensive look at the proposed development is needed and the cumulative impact of the project needs to be addressed in the analysis.

Comment 172

As noted in an article titled Cumulative Impact Assessment under the National Environmental Policy Act: An Analysis of Recent Case Law by Michael D. Smith, "Evidence is increasing that the most devastating environmental effects may result not

Keep it wild | The Montana Wilderness Association educates the public and works at the local

Response 169: Comment noted. See the responses to comments 20, 22, and 29 and revisions to the discussion of impacts in Chapter 4. Short-term, non-firm capacity would likely be available to other electricity producers.

Response 170: Comment noted. See the revised discussion of impacts in Section 4.16.

Response 171: See the responses to comments 20, 22, and revisions to the discussion of impacts in Chapter 4. The agencies are not aware of any other developments in the area that would come under the agency's permitting authority.

Response 172: Comment noted.

"Evidence is increasing that the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time (Council on Environmental Quality, 1997,p.1).

Comment 172 (Continued)

A backlash toward wind generated electricity is developing in parts of the country where wind farms and transmission lines are sprouting up on some of the nation's last undeveloped landscapes. It is important that Montana develops wind energy in a manner that preserves our increasingly rare and valuable natural landscapes.

Comment 173

We appreciate the opportunity to comment and anticipate learning more about your agency's intentions.

Sincerely,

Joanne Bernard

Joanne Bernard
Chairperson
Montana Wilderness Association
Island Range Chapter

Response 173: Comment noted.

02/16/2006 17:43 406-727-2693 PAGE 01/02

J.C. O'Brien & Sons, Inc
421 Deer Drive
Great Falls, Montana 59404
Ph 406 452-9471
FAX 406 452-4069

FACSIMILE MESSAGE

DATE: April 9, 2007

TO: Department of Environmental Quality
MATL@mt.gov
Att: Mr. Greg Hallsten

PHONE/FAX: 406-444-4386

SUBJECT: Comments on the Draft EIS for the MATL transmission line

NUMBER OF PAGES INCLUDING COVER: 2

Here are some written comments and questions regarding the proposed transmission line. By way of qualifications, I am a land owner and have farm land immediately South of Conrad which is scattered about in various sections. While it seems from the maps that this line will not cross our property, we are in a position where every thing else, which goes by, crosses our land. We have had some very sad experiences over the years with public utilities, pipelines, fiber optic cables and various other well-intentioned utilities impacting our land.

I am all for this country developing sources of non-polluting energy, and I assume we all are. This project, however, raises some questions, which should be answered before it is allowed to proceed. Here are a few of my concerns, in no particular order of importance.

Comment 174

1. If the permits being requested are granted, then does that convey the right of eminent domain to a private Canadian Corporation? If so, would they then use that right to follow their preferred alternative and go diagonally across farmland wherever they wanted to?

Comment 175

2. Since the tax incentives that Governor Schweitzer had wanted to give to alternative energy developments and transmission lines were not granted by the Montana Legislature, will Tonbridge Power continue with the project? They have stated that they would not. Also, somewhere in the Draft EIS it stated that if they were forced to go with Alternative 4, the line would probably not be built. They stated in their progress report, fall of 2006, that they were advancing procurement of long lead-time

Response 174: See response to comment 8.

Response 175: In the special legislative session the "Clean and Green Energy" tax incentives package was passed. See the revised discussion of socioeconomic impacts in Section 3.13.

02/16/2006 17:43 406-727-2693 PAGE 02/02

Comment 175 (Continued)

components and had awarded contracts for the construction of sub stations at Lethbridge and Cut Bank. There seems to be some discrepancy here. Could it be possible that they will build the line anyway, even if it is not subsidized by the taxpayers of Montana?

Comment 176

3. Alternative 4 has 27.0 miles of the alignment crossing non-irrigated cropland at a diagonal versus almost twice that amount at 52.8 miles in Alternative 2. Either is too much. If the project can't afford to go on section lines because of the economics, then it should not be built. Of course this doesn't even begin to address the esthetic and visual impacts of the line. Those of us who will have the line in our front yard but not on our land will have to live with the impacts forever. We, of course, will not be compensated for the impacts on the land values caused by the line. This is a major concern to all landowners in the vicinity of the line. Figure 3.15-5 is a dramatic example of the visual impact of the line.

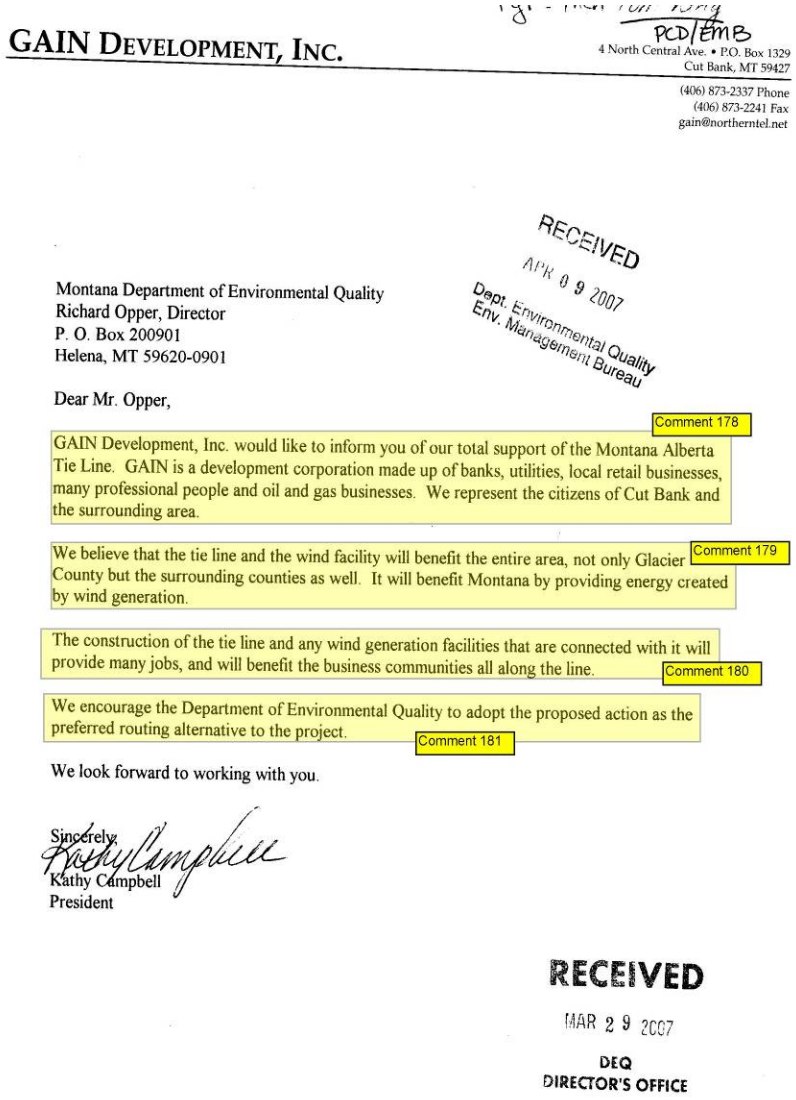
Comment 177

Page 4-9 discusses the long term impacts to land. I think that a significant impact, not mentioned, would be a decrease in land values just by having the line in the vicinity.

MESSAGE is intended only for the use of the addressee and may contain information that is privileged and confidential. If you are not the intended recipient, you are hereby notified that any dissemination of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately.

Response 176: Comment noted.

Response 177: See response to comment 163. To the extent that the MATL line would lower land values, that would be a cost to landowners. See the revised discussion on land values in Section 3.13. Section 3.15 notes that most visual impacts are direct and long term and that transmission line structures within the immediate foreground of residences would result in a major impact. Homeowners would not be compensated for these effects when the line is not on their land.



GAIN DEVELOPMENT, INC.

PCD/EMB

4 North Central Ave. • P.O. Box 1329
Cut Bank, MT 59427
(406) 873-2337 Phone
(406) 873-2241 Fax
gain@northerntel.net

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APR 09 2007
Dept. Environmental Quality
Env. Management Bureau

Montana Department of Environmental Quality
Richard Opper, Director
P. O. Box 200901
Helena, MT 59620-0901

Dear Mr. Opper,

Comment 178

GAIN Development, Inc. would like to inform you of our total support of the Montana Alberta Tie Line. GAIN is a development corporation made up of banks, utilities, local retail businesses, many professional people and oil and gas businesses. We represent the citizens of Cut Bank and the surrounding area.

Comment 179

We believe that the tie line and the wind facility will benefit the entire area, not only Glacier County but the surrounding counties as well. It will benefit Montana by providing energy created by wind generation.

The construction of the tie line and any wind generation facilities that are connected with it will provide many jobs, and will benefit the business communities all along the line.

Comment 180

We encourage the Department of Environmental Quality to adopt the proposed action as the preferred routing alternative to the project.

Comment 181

We look forward to working with you.

Sincerely,
Kathy Campbell
President

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Response 178: Comment noted.

Response 179: Comment noted.

Response 180: Comment noted.

Response 181: Comment noted.

Hallsten, Greg

From: rjfishermt [rjfishermt@bresnan.net]
Posted At: Monday, April 09, 2007 1:33 PM
Conversation: Montana Alberta Tie line
Posted To: MATL

Subject: Montana Alberta Tie line

Richard Fisher
3015 Acacia Way
Great Falls, Montana 59404-3692
rjfishermt@bresnan.net

Comment 182

My comment is very simple and brief.

If at all feasible, I would prefer the line be placed east of Interstate 15.

I do imagine the reasons for the developer wanting the line to be placed as close to the towns that could be served and where the wind farms may be located as users of the line. However, in the best of all alternatives, placing the line to the east keeps it on the opposite side from the landscape view of the Rocky Mountain Front for tourists and residents alike. We are blessed to have this majestic inspiration of this one-of-a-kind landscape. Whenever possible, that view scape should be preserved.

This is of further merit since Montana exports as much as 50% of the electrical power generated in the state. Thus, we should not sacrifice our greatest assets, our last best place, to assuage the avarice of non-Montana cities and industries. Exporting is important, but not to the sacrifice of and harm to our irreplaceable natural resources. The tourist business is of far more benefit and return on investment than the electrical generating business.

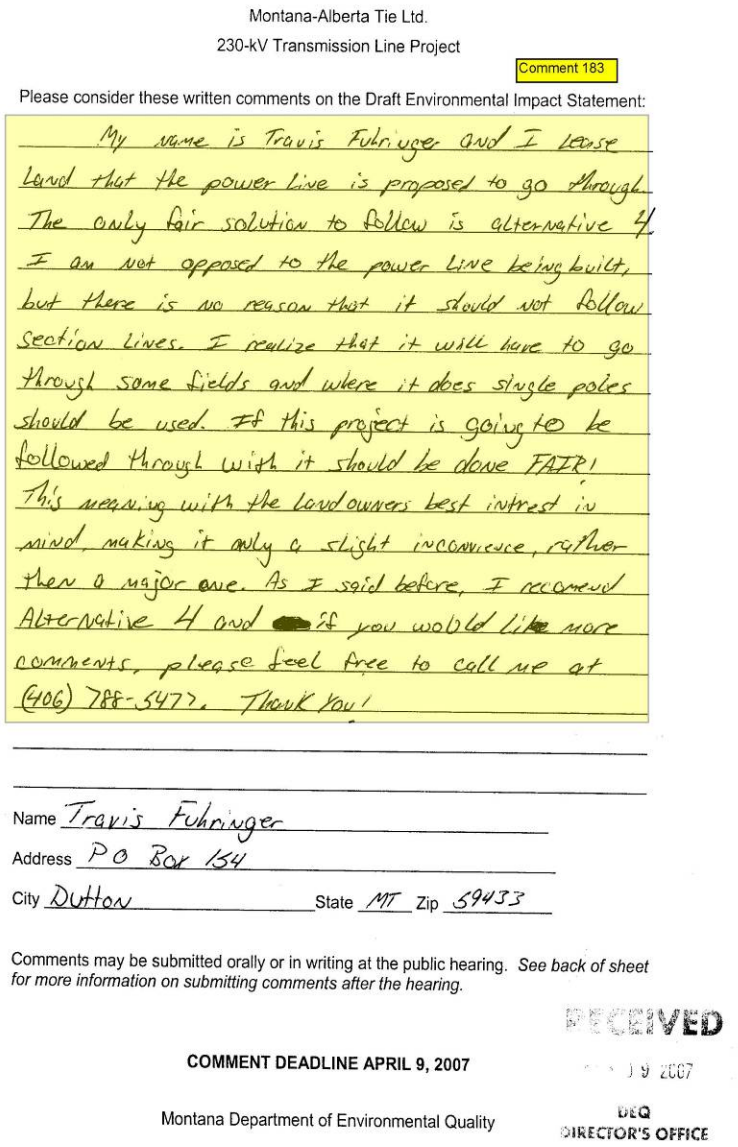
Instead of the line following the wind farms, let the line placement attract the wind farms out of the view scape.

Thank you.

Richard Fisher

1

Response 182: Comment noted. The three action alternatives would be located east of Interstate 15 on the southern portion of the project and remains almost 50 miles east of Glacier National Park in the north. The line would tend to attract wind farms in the Conrad and Cut Bank areas but not as far west as the Rocky Mountain Front. A rule of thumb is that an individual 150MW wind farm can typically afford to build only about 30 to 40 miles of interconnecting 230-kV transmission lines before the project becomes economically infeasible. With adequate wind resources close to the proposed line, it is most likely that wind farms would be close to the line rather than being built at a great distance from it. There are several other proposed interconnections with existing transmission lines between Great Falls and the border with Canada, as indicated in Chapter 4. All three action alternatives have been sited in a general southeast to northwest direction between Great Falls and Cut Bank and would be located east of Interstate 15 for part of their length (see mileage information below). All would cross Interstate 15 with the proposed line present in foreground views, including views toward the Rocky Mountain Front approximately 40 miles to the west. With panoramic landscape views common throughout the study area, including views toward the Rocky Mountain Front, residences located east of Interstate 15 as well as tourists driving other highways and roads throughout the study area would have the transmission line present in many views.



Montana-Alberta Tie Ltd.

230-kV Transmission Line Project

Comment 183

Please consider these written comments on the Draft Environmental Impact Statement:

My name is Travis Fuhringer and I lease land that the power line is proposed to go through. The only fair solution to follow is alternative 4. I am not opposed to the power line being built, but there is no reason that it should not follow section lines. I realize that it will have to go through some fields and where it does single poles should be used. If this project is going to be followed through with it should be done FAIR! This meaning with the landowners best intrest in mind, making it only a slight inconvience, rather then a major one. As I said before, I recomend Alternative 4 and if you would like more comments, please feel free to call me at (406) 788-5477. Thank You!

Name Travis Fuhringer

Address PO Box 154

City Dutton State MT Zip 59433

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

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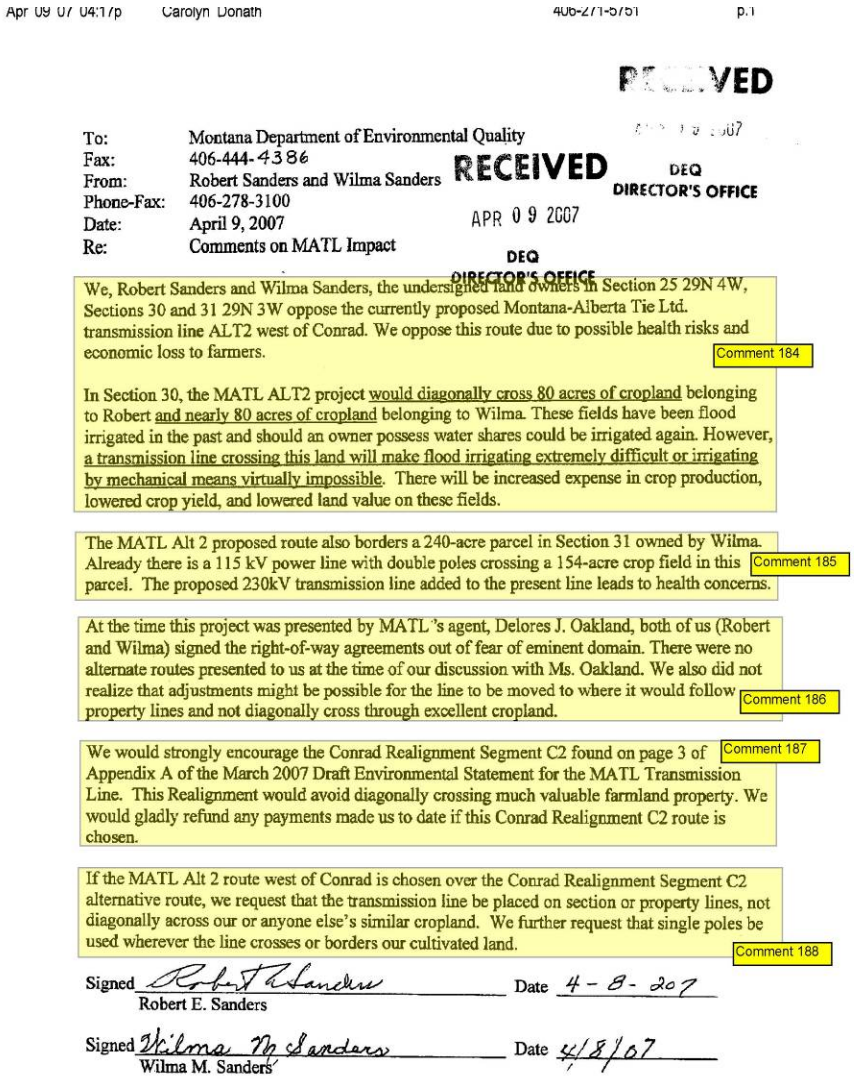
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DIRECTOR'S OFFICE

COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

Mileage information: Alternative 2 would have approximately 53 miles of its total 130-mile length east of Interstate 15 and would cross the interstate between Brady and Conrad. Alternative 3 would have approximately 50 miles of its total 122-mile length east of Interstate 15, crossing the interstate between Brady and Conrad. Alternative 4 would have approximately 73 miles of its total 140-mile length east of Interstate 15, crossing the interstate north of Conrad.

Response 183: Comment noted.



Apr 09 07 04:17p Carolyn Donath 406-271-5751 p.1

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APR 09 2007

DEQ
DIRECTOR'S OFFICE

To: Montana Department of Environmental Quality
Fax: 406-444-4386
From: Robert Sanders and Wilma Sanders
Phone-Fax: 406-278-3100
Date: April 9, 2007
Re: Comments on MATL Impact

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DIRECTOR'S OFFICE

We, Robert Sanders and Wilma Sanders, the undersigned land owners in Section 25 29N 4W, Sections 30 and 31 29N 3W oppose the currently proposed Montana-Alberta Tie Ltd. transmission line ALT2 west of Conrad. We oppose this route due to possible health risks and economic loss to farmers. Comment 184

In Section 30, the MATL ALT2 project would diagonally cross 80 acres of cropland belonging to Robert and nearly 80 acres of cropland belonging to Wilma. These fields have been flood irrigated in the past and should an owner possess water shares could be irrigated again. However, a transmission line crossing this land will make flood irrigating extremely difficult or irrigating by mechanical means virtually impossible. There will be increased expense in crop production, lowered crop yield, and lowered land value on these fields.

The MATL Alt 2 proposed route also borders a 240-acre parcel in Section 31 owned by Wilma. Already there is a 115 kV power line with double poles crossing a 154-acre crop field in this parcel. The proposed 230kV transmission line added to the present line leads to health concerns. Comment 185

At the time this project was presented by MATL's agent, Delores J. Oakland, both of us (Robert and Wilma) signed the right-of-way agreements out of fear of eminent domain. There were no alternate routes presented to us at the time of our discussion with Ms. Oakland. We also did not realize that adjustments might be possible for the line to be moved to where it would follow property lines and not diagonally cross through excellent cropland. Comment 186

We would strongly encourage the Conrad Realignment Segment C2 found on page 3 of Appendix A of the March 2007 Draft Environmental Statement for the MATL Transmission Line. This Realignment would avoid diagonally crossing much valuable farmland property. We would gladly refund any payments made us to date if this Conrad Realignment C2 route is chosen. Comment 187

If the MATL Alt 2 route west of Conrad is chosen over the Conrad Realignment Segment C2 alternative route, we request that the transmission line be placed on section or property lines, not diagonally across our or anyone else's similar cropland. We further request that single poles be used wherever the line crosses or borders our cultivated land. Comment 188

Signed Robert E. Sanders Date 4-8-07
Robert E. Sanders

Signed Wilma M. Sanders Date 4/8/07
Wilma M. Sanders

Response 184: Comments noted. In response to this comment the agencies' staff worked with the Sanders and developed a small realignment that would locate structures on range and pasturelands and along field boundaries.

Response 185: Health concerns are addressed in Section 3.4 and 4.5.

Response 186: Comment noted.

Response 187: Comment noted. See response to comment 184.

Response 188: See response to comment 184.

Hallsten, Greg

From: Briggs, Joe [jbriggs@co.cascade.mt.us]
Posted At: Monday, April 09, 2007 12:40 PM
Conversation: Comments on the proposed MATL power line from Great Falls to Lethbridge
Posted To: MATL
Subject: Comments on the proposed MATL power line from Great Falls to Lethbridge

Mr. Greg Hallsten,

Sir, on behalf of the Cascade County Commission, I would like to offer the following comments regarding the MATL power line.

Comment 189

We remain convinced that the development of this line is a critical element in the development of wind energy resources throughout North Central Montana and are very supportive of both the process which has been utilized and of the construction of the line itself.

As we have reviewed the proposed routing, we do have one concern which we would like to bring to your attention. In addition to the development of wind energy, we have also been working to attract value added agricultural to the area North of Great Falls. Currently, the malting plant is the only plant in operation, but a second valued added plant is in the permitting and zoning process phase. This new plant would occupy three parcels of land currently owned by Duane L Vick which lie directly North of the rail spur.

As proposed, alternative #4 cuts across the North East corner of the Eastern most of these three lots. If alternative # 4 is ultimately deemed the best route, it is critical to the success of this new venture that the impact on their three lots be minimized. We would ask that the line be kept as far East on their property as is possible so as to not disrupt their operations. As currently shown on the maps provided, the MATL line would be located North and East of the existing transmission lines. This configuration does not represent an issue to the new plant, but relocating the line to the South and West of the existing transmission lines would likely destroy the viability of the project.

Thank you for your work on this project and your attention to this concern.

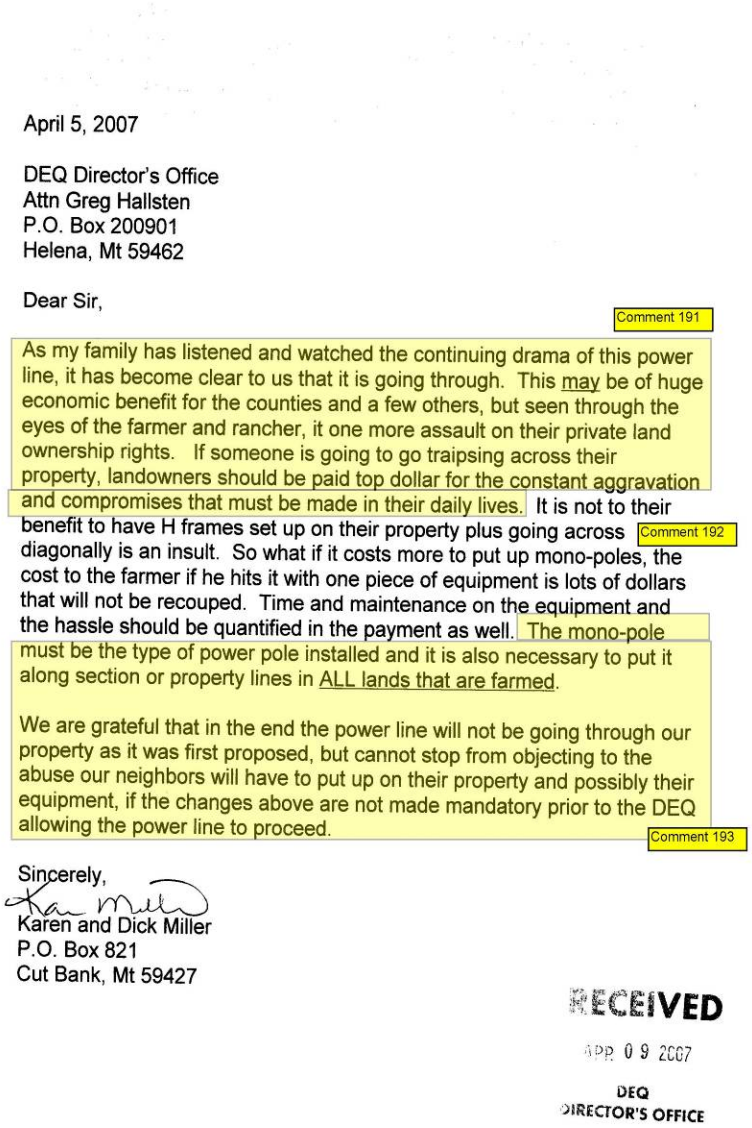
Comment 190

Joe Briggs

Cascade County Commissioner

Response 189: Comment noted.

Response 190: Comment noted. Alternative 4 remains on the north side of WAPA's Great Falls to Conrad 230-kV transmission line in this area and as a consequence crosses subdivided land. See responses to comments 37, 64, and 66.



April 5, 2007

DEQ Director's Office
Attn Greg Hallsten
P.O. Box 200901
Helena, Mt 59462

Dear Sir,

Comment 191

As my family has listened and watched the continuing drama of this power line, it has become clear to us that it is going through. This may be of huge economic benefit for the counties and a few others, but seen through the eyes of the farmer and rancher, it one more assault on their private land ownership rights. If someone is going to go traipsing across their property, landowners should be paid top dollar for the constant aggravation and compromises that must be made in their daily lives. It is not to their benefit to have H frames set up on their property plus going across diagonally is an insult. So what if it costs more to put up mono-poles, the cost to the farmer if he hits it with one piece of equipment is lots of dollars that will not be recouped. Time and maintenance on the equipment and the hassle should be quantified in the payment as well. The mono-pole must be the type of power pole installed and it is also necessary to put it along section or property lines in ALL lands that are farmed.

Comment 192

Comment 193

We are grateful that in the end the power line will not be going through our property as it was first proposed, but cannot stop from objecting to the abuse our neighbors will have to put up on their property and possibly their equipment, if the changes above are not made mandatory prior to the DEQ allowing the power line to proceed.

Sincerely,

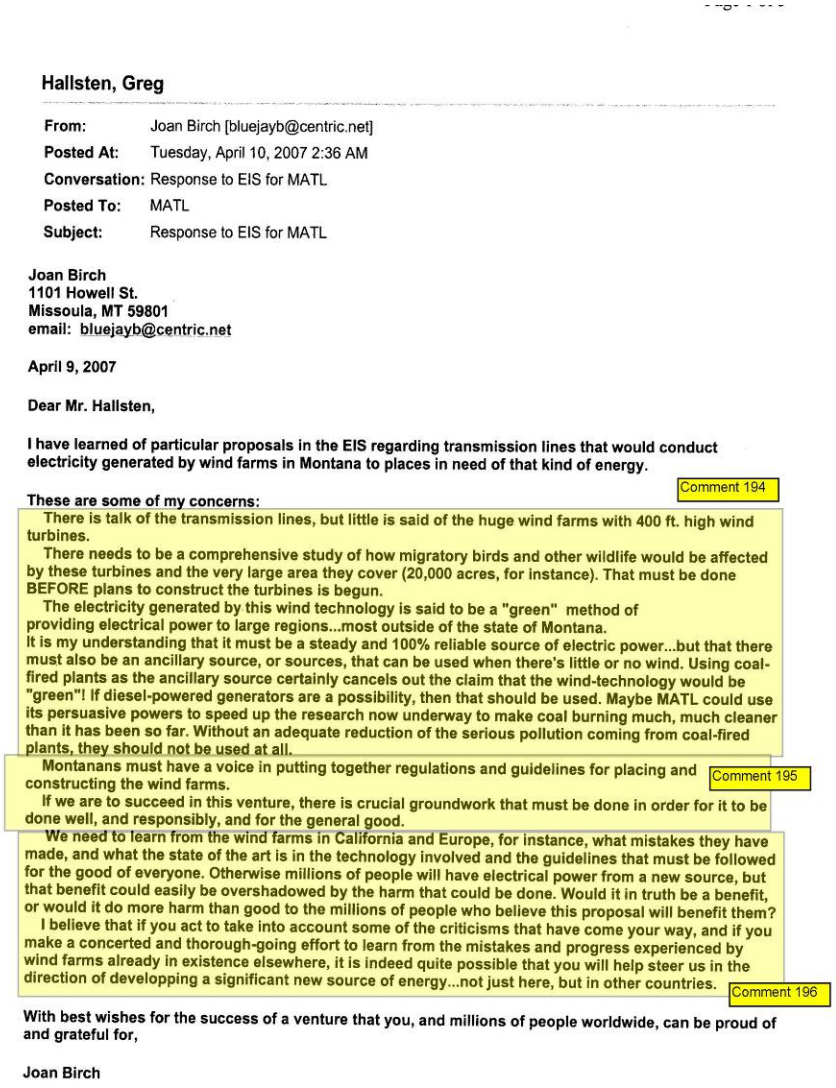
Karen and Dick Miller
P.O. Box 821
Cut Bank, Mt 59427

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DIRECTOR'S OFFICE

Response 191: Comment noted.

Response 192: Section 3.13 has been revised in response to comments and describes ranges of costs to farm around single pole and H-frame structures. The additional costs of maintaining equipment that collides with a structure has not been included because no information is available on the frequency or extent of damage to equipment. However, the agencies recognize that damage does occur.

Response 193: Comment noted. Locating the line along section lines and property lines would add substantially to the cost of the line due to the extra angle structures and added length. In addition locating along section lines would increase the chances that the line would be located close to residences since many of the rural residences are located near county roads which in many cases run along section lines. In farmland, extra angles in the line would increase the difficulty of aerial spraying near the corners of the line.



Hallsten, Greg

From: Joan Birch [bluejayb@centric.net]
Posted At: Tuesday, April 10, 2007 2:36 AM
Conversation: Response to EIS for MATL
Posted To: MATL
Subject: Response to EIS for MATL

Joan Birch
1101 Howell St.
Missoula, MT 59801
email: bluejayb@centric.net

April 9, 2007

Dear Mr. Hallsten,

I have learned of particular proposals in the EIS regarding transmission lines that would conduct electricity generated by wind farms in Montana to places in need of that kind of energy.

Comment 194

These are some of my concerns:

There is talk of the transmission lines, but little is said of the huge wind farms with 400 ft. high wind turbines.

There needs to be a comprehensive study of how migratory birds and other wildlife would be affected by these turbines and the very large area they cover (20,000 acres, for instance). That must be done BEFORE plans to construct the turbines is begun.

The electricity generated by this wind technology is said to be a "green" method of providing electrical power to large regions...most outside of the state of Montana.
It is my understanding that it must be a steady and 100% reliable source of electric power...but that there must also be an ancillary source, or sources, that can be used when there's little or no wind. Using coal-fired plants as the ancillary source certainly cancels out the claim that the wind-technology would be "green"! If diesel-powered generators are a possibility, then that should be used. Maybe MATL could use its persuasive powers to speed up the research now underway to make coal burning much, much cleaner than it has been so far. Without an adequate reduction of the serious pollution coming from coal-fired plants, they should not be used at all.

Montanans must have a voice in putting together regulations and guidelines for placing and constructing the wind farms.

Comment 195

If we are to succeed in this venture, there is crucial groundwork that must be done in order for it to be done well, and responsibly, and for the general good.

We need to learn from the wind farms in California and Europe, for instance, what mistakes they have made, and what the state of the art is in the technology involved and the guidelines that must be followed for the good of everyone. Otherwise millions of people will have electrical power from a new source, but that benefit could easily be overshadowed by the harm that could be done. Would it in truth be a benefit, or would it do more harm than good to the millions of people who believe this proposal will benefit them?

I believe that if you act to take into account some of the criticisms that have come your way, and if you make a concerted and thorough-going effort to learn from the mistakes and progress experienced by wind farms already in existence elsewhere, it is indeed quite possible that you will help steer us in the direction of developping a significant new source of energy...not just here, but in other countries.

Comment 196

With best wishes for the success of a venture that you, and millions of people worldwide, can be proud of and grateful for,

Joan Birch

Response 194a: Responsibility for enforcing the Migratory Bird Treaty Act relative to bird mortality caused by wind turbines falls to the U.S. Fish and Wildlife Service. The agencies would encourage that preplanning studies of avian use be conducted prior to designing a wind farm to the extent that the U.S. Fish and Wildlife Service recommends that such studies be conducted.

Response 194b: The market for transmission of power in Montana is designed around an hour to hour bidding process. If a wind farm operator contracts with a transmission service provider to transmit electricity to consumers, the wind farm operator will contractually arrange for a specified amount of power to be transmitted over a line for a one-hour period. The consumers will purchase and use this amount of power. In order to meet reliability standards the transmission system operator must balance the amount of power being generated and added to the transmission system with the amount of power that is being consumed and removed from the system. If the wind should suddenly drop and the wind farm cannot fulfill its contract obligation to deliver a specified amount of power within an hour, then the transmission system operator either has to add more power from other sources to the transmission system on short notice or risk upsetting the balance of power production and consumption. If the transmission system gets too far out of balance, then brownouts or blackouts are a possibility. The transmission system operator can also face monetary penalties from the Western Electricity Coordinating Council for not maintaining the proper balance. Therefore the system relies on standby generation (regulating reserves) to quickly make up or fill in for these shortfalls. Typically hydropower and gas-fired generation can ramp up quickly to fill in. Traditionally, coal-fired generation plants can be used but only to a limited

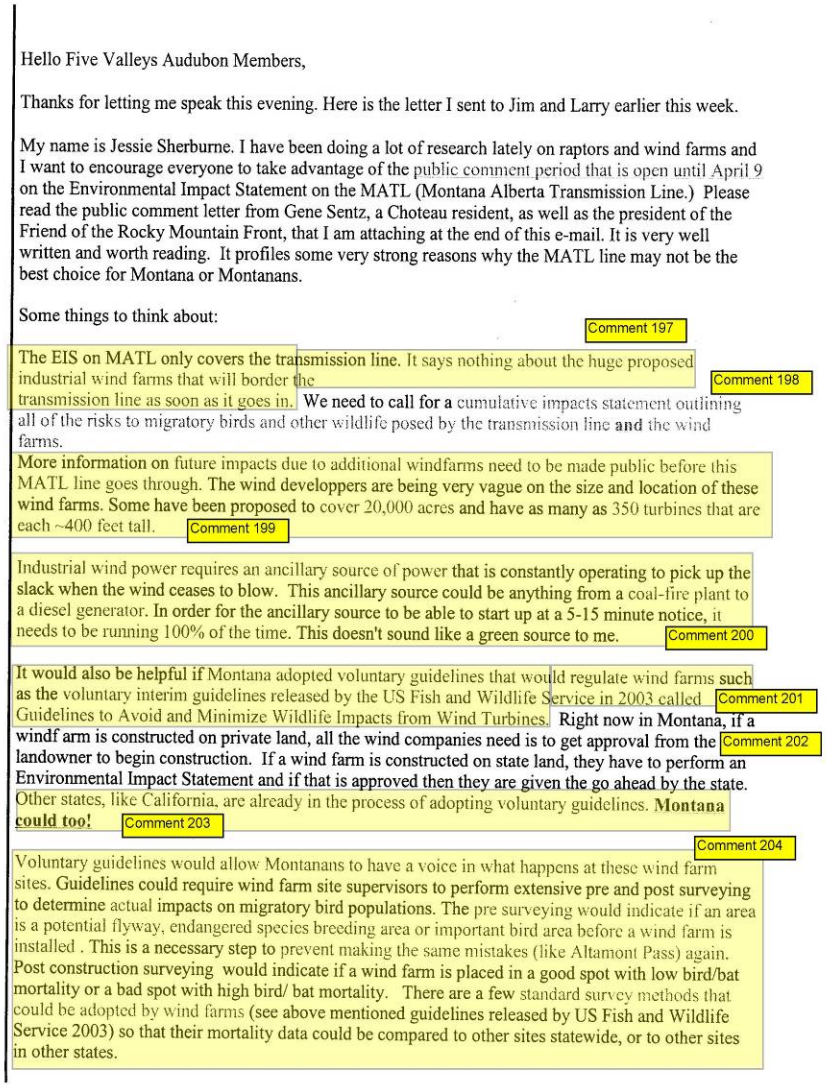
degree because it takes them longer to increase generation. Coal-fired plants are more often used to provide a solid, steady, longer term base of generation rather than responding very quickly to short term shortfalls. However the agencies understand that some developers are investigating the possibility of converting coal to a synthetic diesel fuel and using this fuel in conventional diesel generators to increase generation when the wind drops. The hydropower and gas-fired generation that are typically used for regulating reserves are 'greener' than coal generation.

The agencies understand that before MATL would interconnect with NorthWestern Energy's transmission system at Great Falls, MATL would have completed contractual arrangements with each of the wind farms the MATL line would serve, requiring the shippers (wind farms) to guarantee that they have access to and would provide the additional standby-generation needed for their individual wind farms. The sources of these regulating reserves would be up to the shippers.

See responses to comments 20 and 22. Electricity generated by other means than wind turbines could be transmitted on the MATL line, especially when there is a need to stabilize the flow of electricity in the system. The agencies cannot specify what sources of electricity can use the line. Comprehensive studies of the type suggested by the commenter are outside the scope of the EIS.

Response 195: Comment noted. The agencies do not have regulatory oversight for the siting of wind farms, therefore the agencies would not be involved in putting together regulations and guidelines for placing or constructing wind farms.

Response 196: Comment noted. While generation plants greater than 50 MW in size were once regulated under the Major Facility Siting Act, the legislature removed requirements for siting approval for most types of generation facilities, including wind farms. Thus the legislative direction given DEQ is not to be involved with regulating the siting of such generation installations.



Hello Five Valleys Audubon Members,

Thanks for letting me speak this evening. Here is the letter I sent to Jim and Larry earlier this week.

My name is Jessie Sherburne. I have been doing a lot of research lately on raptors and wind farms and I want to encourage everyone to take advantage of the public comment period that is open until April 9 on the Environmental Impact Statement on the MATL (Montana Alberta Transmission Line.) Please read the public comment letter from Gene Sentz, a Choteau resident, as well as the president of the Friend of the Rocky Mountain Front, that I am attaching at the end of this e-mail. It is very well written and worth reading. It profiles some very strong reasons why the MATL line may not be the best choice for Montana or Montanans.

Some things to think about:

Comment 197

The EIS on MATL only covers the transmission line. It says nothing about the huge proposed industrial wind farms that will border the transmission line as soon as it goes in. We need to call for a cumulative impacts statement outlining all of the risks to migratory birds and other wildlife posed by the transmission line and the wind farms.

Comment 198

More information on future impacts due to additional windfarms need to be made public before this MATL line goes through. The wind developpers are being very vague on the size and location of these wind farms. Some have been proposed to cover 20,000 acres and have as many as 350 turbines that are each ~400 feet tall.

Comment 199

Industrial wind power requires an ancillary source of power that is constantly operating to pick up the slack when the wind ceases to blow. This ancillary source could be anything from a coal-fire plant to a diesel generator. In order for the ancillary source to be able to start up at a 5-15 minute notice, it needs to be running 100% of the time. This doesn't sound like a green source to me.

Comment 200

It would also be helpful if Montana adopted voluntary guidelines that would regulate wind farms such as the voluntary interim guidelines released by the US Fish and Wildlife Service in 2003 called Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines.

Comment 201

Right now in Montana, if a windf arm is constructed on private land, all the wind companies need is to get approval from the landowner to begin construction. If a wind farm is constructed on state land, they have to perform an Environmental Impact Statement and if that is approved then they are given the go ahead by the state.

Comment 202

Other states, like California, are already in the process of adopting voluntary guidelines. **Montana could too!**

Comment 203

Comment 204

Voluntary guidelines would allow Montanans to have a voice in what happens at these wind farm sites. Guidelines could require wind farm site supervisors to perform extensive pre and post surveying to determine actual impacts on migratory bird populations. The pre surveying would indicate if an area is a potential flyway, endangered species breeding area or important bird area before a wind farm is installed . This is a necessary step to prevent making the same mistakes (like Altamont Pass) again. Post construction surveying would indicate if a wind farm is placed in a good spot with low bird/bat mortality or a bad spot with high bird/ bat mortality. There are a few standard survey methods that could be adopted by wind farms (see above mentioned guidelines released by US Fish and Wildlife Service 2003) so that their mortality data could be compared to other sites statewide, or to other sites in other states.

Response 197: See the responses to comments 20 and 29 and Chapter 4.

Response 198: See the responses to comments 20 and the revised discussion of cumulative impacts in Chapter 4.

Response 199: See responses to comments 20, 22, 29 and the revised discussion of cumulative impacts in Chapter 4.

Response 200: See response to comment 194.

Response 201: With other voluntary guidelines such as those developed by U.S. Fish and Wildlife Service in place and no legislative direction to be involved with regulating siting and design of wind farms, the agencies have no role in developing guidelines for wind farms. See response to comment 196 for a discussion of legislative direction and related comment 240. The desire for development of guidelines for development of wind farms has been referred to Montana Fish, Wildlife & Parks, Montana's wildlife management agency.

Response 202: See the revised discussion of cumulative impacts in Chapter 4 for a list of potential permits and regulatory approvals. If a state permit or approval is required, then the permitting agency has the responsibility to review the project under the Montana Environmental Policy Act. This review may take the form of an environmental assessment if there is no potential for significant adverse impacts or an environmental impact statement if the agency finds there are potentially significant adverse impacts. If no permits are required, then there would be no environmental review.

Response 203: Comment noted. Refer to the response to comment 201 as well.

Response 204: By their very nature guidelines are recommendations that others can voluntarily adopt. Guidelines cannot require anybody to do anything. The comments correctly indicate that guidelines have been developed relative to pre-planning studies of bird populations and their movements in the vicinity of wind farms. Voluntary guidelines could be developed by agencies with some mission or authority on a topic, for example wildlife guidelines by Montana Fish, Wildlife and Parks or siting on state land by the Department of Natural Resources and Conservation. DEQ does not have this responsibility, so probably would not be involved with guideline development unless directed by the Governor's office. Another set of voluntary guidelines would not guarantee that the public has any role.

Having white strobe lights installed on the tops of turbines rather than red blinking lights has been shown in some places to reduce bird fatalities. This could also be a voluntary guideline. Comment 205

These are all options that would make wind farms in Montana more bird friendly and environmentally conscious. Wind power is not a new technology. It has been in existence for 15-20 years in many countries in Europe. Now is the time to use methods that have been found to work to make this the safest and most consciencious choice for Montana. Due to the urgency that wind farms seem to be being pushed through to completion, I am doubtful that any of these previously mentioned guidelines are being considered. The people in charge of MATL and this EIS need to hear this from us. Please write in and make your voice heard. Comment 206

Written comments can me sent to Montana Department of Environmental Quality. Directors Office, PO Box 200901, Helena, MT 59620-0901, Attn: Greg Hallsten. Comments can also be e-mailed MATL@mt.gov .

Thanks,
Jessie
Contact me if you have any questions: jsherb@gmail.com (406)-250-7380.

March 18, 2007

Mr. Richard Opper, Director, Dept of Environmental Quality, PO Box 200901, Helena, MT 59620-0901
ropper@mt.gov

Dear Mr. Opper:

Here is a public comment letter I sent yesterday to DEQ. I just wanted you, as DEQ director, to be aware that there are a growing number of people who have serious questions as to the speed at which this proposed MATL project is progressing. There seem to be a number of serious questions to be answered and additional studies that should be done before DEQ approves this project. I hope you will take these comments into consideration. Thank you.
Comment 207

Best regards,

Gene Sentz, Choteau, MT 59422-0763 friends@3rivers.net

March 17, 2007

To: Mr. Tom Ring and Mr. Greg Hallsten, et al, Montana Dept of Environmental Quality, PO Box 200901, Helena, Montana 59620-0901

tring@mt.gov; ghallsten@mt.gov; MATL@mt.gov

Dear Mr. Ring and Mr. Hallsten, et al:

Please include in the public record these comments with regard to the proposed MATL transmission line.
Comment 208

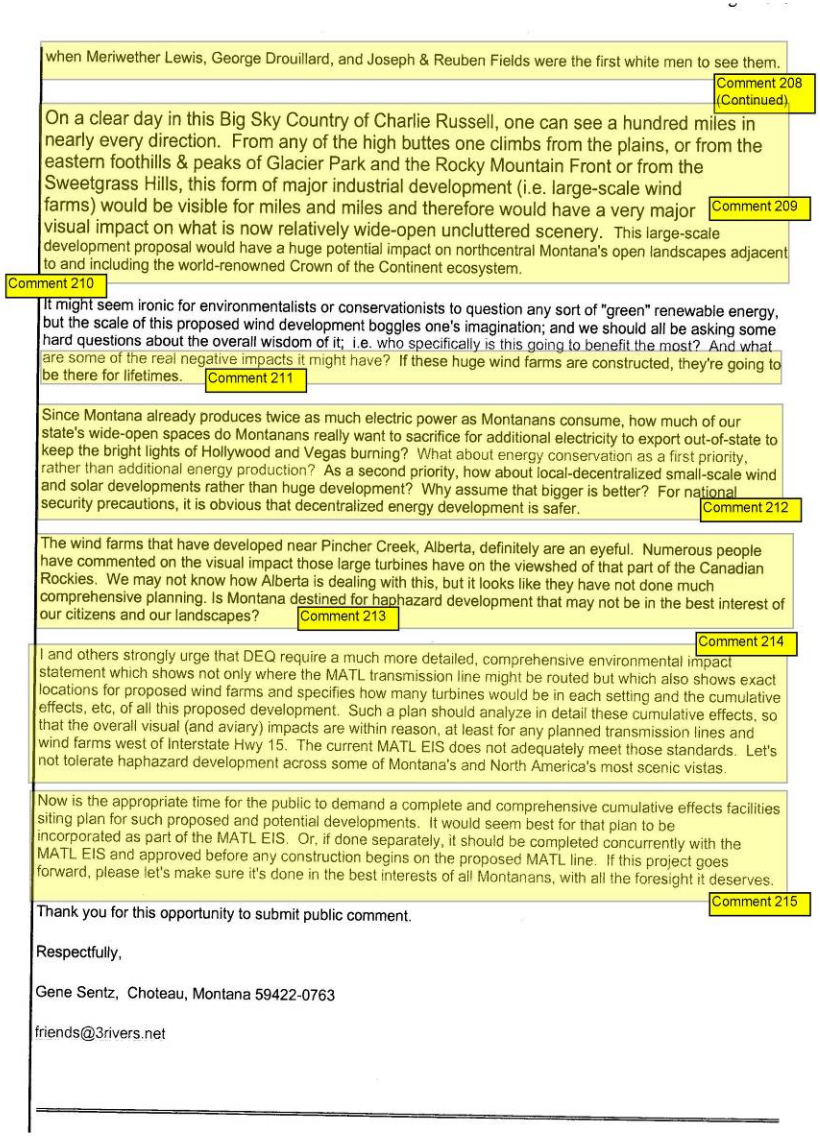
The more I've thought about, and tried to picture, the proposed MATL line from Great Falls to Lethbridge, the more concern I have about exactly where major large-scale highly-visible wind farms would be sited along that line, how far away they might be west-and-east of such a line, and what cumulative effects, especially to the viewsheds of the Rocky Mountain Front, the Sweetgrass Hills, Glacier Park, and to other special areas like the Lewis & Clark fight site, Camp Disappointment, the Baker Massacre site, etc, and to the wonderful wide-open prairies of the Great Plains that this major transmission line and potentially 400 or more of those 300-foot-tall wind turbines would have on these landscapes, which overall have changed very little from two centuries ago

Response 205: Comment noted.

Response 206: Comment noted. Naturener USA (formerly Great Plains Wind and Energy), one of the firms with interconnection agreements with MATL, has indicated to the agencies that some pre-construction avian studies have been completed where it is planning to build a wind farm. Invenergy plans to complete necessary avian studies when its projects are further along. Wind Hunter's intentions are unknown.

Response 207: Comment noted.

Response 208: See responses to comments 28 and the revised discussion of cumulative impacts in Chapter 4.



when Meriwether Lewis, George Drouillard, and Joseph & Reuben Fields were the first white men to see them.

Comment 208 (Continued)

On a clear day in this Big Sky Country of Charlie Russell, one can see a hundred miles in nearly every direction. From any of the high buttes one climbs from the plains, or from the eastern foothills & peaks of Glacier Park and the Rocky Mountain Front or from the Sweetgrass Hills, this form of major industrial development (i.e. large-scale wind farms) would be visible for miles and miles and therefore would have a very major visual impact on what is now relatively wide-open uncluttered scenery. This large-scale development proposal would have a huge potential impact on northcentral Montana's open landscapes adjacent to and including the world-renowned Crown of the Continent ecosystem.

Comment 209

Comment 210

It might seem ironic for environmentalists or conservationists to question any sort of "green" renewable energy, but the scale of this proposed wind development boggles one's imagination; and we should all be asking some hard questions about the overall wisdom of it; i.e. who specifically is this going to benefit the most? And what are some of the real negative impacts it might have? If these huge wind farms are constructed, they're going to be there for lifetimes.

Comment 211

Since Montana already produces twice as much electric power as Montanans consume, how much of our state's wide-open spaces do Montanans really want to sacrifice for additional electricity to export out-of-state to keep the bright lights of Hollywood and Vegas burning? What about energy conservation as a first priority, rather than additional energy production? As a second priority, how about local-decentralized small-scale wind and solar developments rather than huge development? Why assume that bigger is better? For national security precautions, it is obvious that decentralized energy development is safer.

Comment 212

The wind farms that have developed near Pincher Creek, Alberta, definitely are an eyeful. Numerous people have commented on the visual impact those large turbines have on the viewshed of that part of the Canadian Rockies. We may not know how Alberta is dealing with this, but it looks like they have not done much comprehensive planning. Is Montana destined for haphazard development that may not be in the best interest of our citizens and our landscapes?

Comment 213

Comment 214

I and others strongly urge that DEQ require a much more detailed, comprehensive environmental impact statement which shows not only where the MATL transmission line might be routed but which also shows exact locations for proposed wind farms and specifies how many turbines would be in each setting and the cumulative effects, etc, of all this proposed development. Such a plan should analyze in detail these cumulative effects, so that the overall visual (and aviary) impacts are within reason, at least for any planned transmission lines and wind farms west of Interstate Hwy 15. The current MATL EIS does not adequately meet those standards. Let's not tolerate haphazard development across some of Montana's and North America's most scenic vistas.

Now is the appropriate time for the public to demand a complete and comprehensive cumulative effects facilities siting plan for such proposed and potential developments. It would seem best for that plan to be incorporated as part of the MATL EIS. Or, if done separately, it should be completed concurrently with the MATL EIS and approved before any construction begins on the proposed MATL line. If this project goes forward, please let's make sure it's done in the best interests of all Montanans, with all the foresight it deserves.

Comment 215

Thank you for this opportunity to submit public comment.

Respectfully,

Gene Sentz, Choteau, Montana 59422-0763

friends@3rivers.net

Response 209: Comment noted. See responses to comments 20, 28, and 29 and the revised discussion of cumulative impacts in Chapter 4 for more information.

Response 210: Electricity generated and/or transmitted as a result of MATL's proposed line would be sold on the open power market, and not necessarily sold to Montana customers. The benefits and costs of MATL to Montana are discussed in Section 1.2 and Section 3.13. Potential impacts to Montana customers are discussed in Section 3.13.

Response 211: The opinion on the lifespan of wind turbines is noted. See the revised discussion of cumulative impacts in Chapter 4 and responses to comments 20 and 28.

Response 212: Under the Major Facility Siting Act, DEQ must respond to proposals that come under its regulatory authority including major transmission lines and pipelines. If DEQ finds and determines that a proposed facility as proposed or as modified, or an alternative, meets the requirements of the Act, it must be approved. Permitting authority over most electricity generation facilities, including wind farms, is no longer covered by the Act, at the direction of the legislature. The electricity generation capacity of present or future energy developments is outside DEQ's legal jurisdiction or control. Also see response to comment 97.

Response 213: The agencies have no regulatory oversight over wind farm siting. It is possible that few if any state permits would be necessary if a project were proposed on private land with no stream or wetland crossings or encroachments. Persons interested in preventing haphazard development of wind farms would need to make their concerns known to developers as wind farms are sited and planned.

Response 214: See responses to comments 20, 22, and 213.

Response 215: See the revised discussion cumulative impacts in Chapter 4.

Glacier-Two Medicine Alliance
P.O. Box 181
East Glacier Park, MT 59434
April 2, 2007

Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Hallsten:

Please include the following comments in the official comment record for the Draft Environmental Impact Statement for Montana-Alberta Tie Ltd.'s 230-kV Transmission Line Project.

Our organization represents people who are concerned with environmental issues on public and private lands that adjoin Glacier National Park and the Rocky Mountain Front part of the Lewis and Clark National Forest. We appreciate the opportunity to comment on this matter. In general, we support the use of innovative renewable energy sources such as wind-power. However, we have concerns about the proposed transmission line in question.

We are concerned about this project for the following reasons:

1. The Environmental Impact Statement doesn't go far enough to address the far-ranging future effects of this transmission line. It is a given that future wind power and coal-fired power plants will be developed as a result of this powerline. Considering the environmental effects solely for the transmission line is analogous to considering the effects of a logging access road without considering the effects of the timber it will lead to harvesting. We feel that the transmission line and its associated power development should be considered together in this document.

Comment 216

2. Montana's Rocky Mountain Front and associated foothills offer world-class scenery and serve as the basis for a healthy tourist industry. Uncontrolled development of wind farms, powerlines and coal-fired generating plants would degrade this priceless resource.

Comment 217

3. It is known that the Rocky Mountain Front and associated foothills serve as a migratory corridor for raptors migrating in the spring and fall. It also serves to funnel waterfowl such as snow geese and tundra swans and songbirds migrating along the Front. Great improvement has been made in the design of wind turbines to make them less hazardous for birds of all kinds. However, they still account for bird mortality. This danger should also be assessed in the EIS.

Comment 218

Response 216: It is likely that wind farms would be developed as a result of the proposed transmission line since three wind energy companies currently hold capacity agreements with MATL. Because of these contracts for transmission line capacity with MATL, the agencies believe that some wind farms are likely to be built over the next two years, though few details are available. Wind farms do not come under the agencies' regulatory authority. These proposed wind farms would account for all of the firm capacity on the proposed line. Consequently, it is speculative to say that new coal-fired plants would be developed that would be dependent on a line where they do not have firm contractual rights to move the power from the plants to markets. There is one coal plant proposed in the MATL area, but it was not proposed because of the MATL project. There is no indication that other electricity generation will be stimulated by the MATL project. See the revised discussions of cumulative impacts in Chapter 4 and responses to comments 20, 22, and 212.

Response 217: Comment noted. See response to comment 216 above relative to the development of coal-fired generation plants.

Response 218: Comment noted. See the revised discussion of cumulative impacts in Chapter 4.

4. The siting of towers and powerpoles should be done in a way that has the least impact on farming activities. It appears, judging from the opinion of many of the landowners at the Great Falls meeting that this could be done better.

Comment 219

5. Since it is acknowledged that Montana is already is already producing enough power for its inhabitants, it is questionable as to whether this project is for the public good or solely for the profit of private industry.

Comment 220

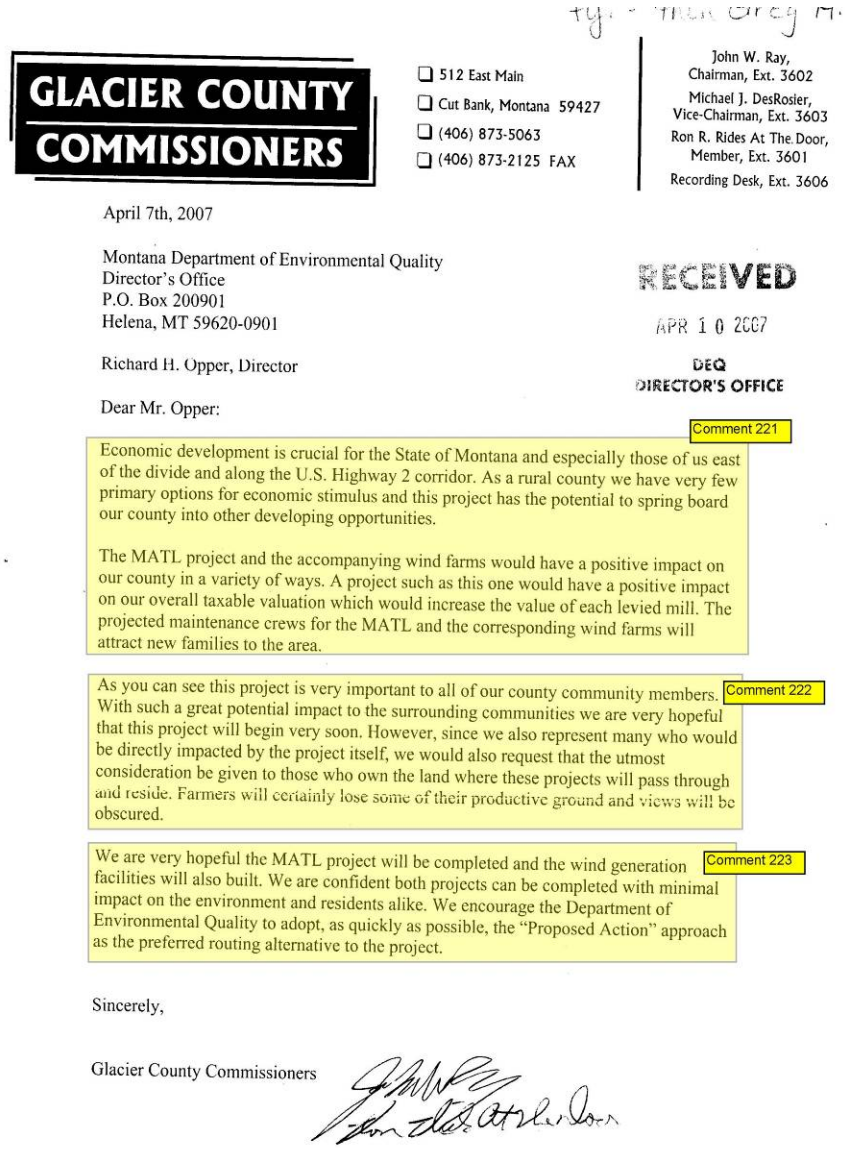
Thank you for the opportunity to comment on this matter.

Sincerely,

Louis Bruno, President
Glacier-Two Medicine Alliance

Response 219: Comment noted.

Response 220: The benefits and cost of MATL to Montana are discussed in Section 1.2 and Section 3.13. Potential impacts to Montana customers are discussed in Section 3.13.



GLACIER COUNTY COMMISSIONERS

512 East Main
Cut Bank, Montana 59427
(406) 873-5063
(406) 873-2125 FAX

John W. Ray, Chairman, Ext. 3602
Michael J. DesRosier, Vice-Chairman, Ext. 3603
Ron R. Rides At The Door, Member, Ext. 3601
Recording Desk, Ext. 3606

April 7th, 2007

Montana Department of Environmental Quality
Director's Office
P.O. Box 200901
Helena, MT 59620-0901

RECEIVED
APR 10 2007
DEQ
DIRECTOR'S OFFICE

Richard H. Opper, Director

Dear Mr. Opper:

Comment 221

Economic development is crucial for the State of Montana and especially those of us east of the divide and along the U.S. Highway 2 corridor. As a rural county we have very few primary options for economic stimulus and this project has the potential to spring board our county into other developing opportunities.

The MATL project and the accompanying wind farms would have a positive impact on our county in a variety of ways. A project such as this one would have a positive impact on our overall taxable valuation which would increase the value of each levied mill. The projected maintenance crews for the MATL and the corresponding wind farms will attract new families to the area.

Comment 222

As you can see this project is very important to all of our county community members. With such a great potential impact to the surrounding communities we are very hopeful that this project will begin very soon. However, since we also represent many who would be directly impacted by the project itself, we would also request that the utmost consideration be given to those who own the land where these projects will pass through and reside. Farmers will certainly lose some of their productive ground and views will be obscured.

Comment 223

We are very hopeful the MATL project will be completed and the wind generation facilities will also built. We are confident both projects can be completed with minimal impact on the environment and residents alike. We encourage the Department of Environmental Quality to adopt, as quickly as possible, the "Proposed Action" approach as the preferred routing alternative to the project.

Sincerely,

Glacier County Commissioners

Response 221: Comment noted.

Response 222: Comment noted.

Response 223: Comment noted.

April 8, 2007
3015 Acacia Way
Great Falls, MT

Greg Hallsten
Dept of Environmental Quality
Box 200901
Helena, MT 59620

Comment 224

The Great Falls Tribune had a map of the proposed Alberta power line. I think the line should be on the east side of Interstate 15. The motto of the state is "Big Sky." We will have to change it to "little sky," if we have an obstructed view of the Rocky Mountains.

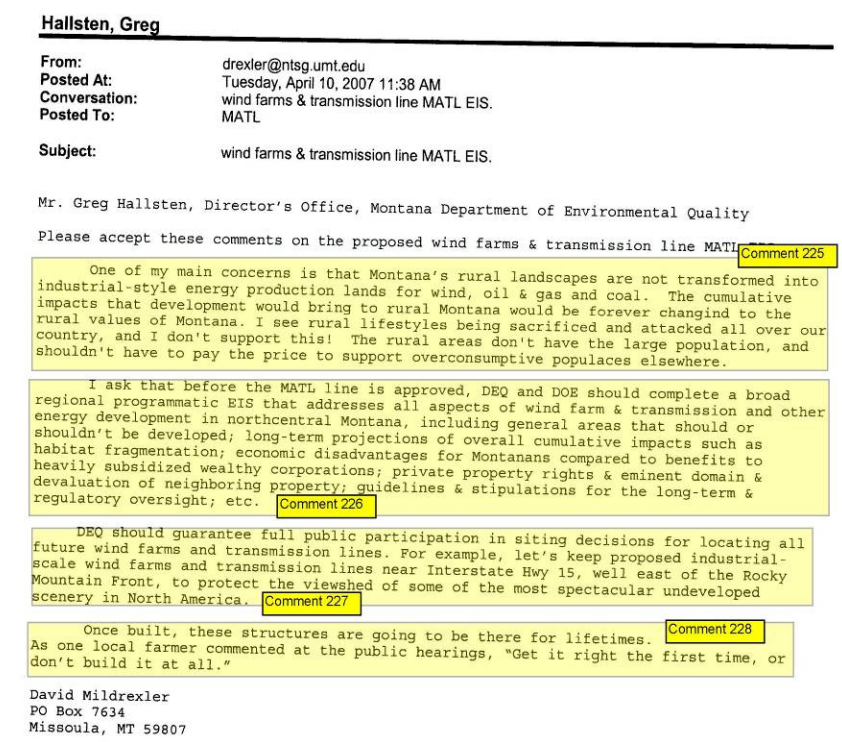
Sincerely,

J Fisher

Joanne Fisher

RECEIVED
APR 10 2007
DEQ
DIRECTOR'S OFFICE

Response 224: Comment noted. All of the alternatives carried forward for detailed consideration remain on the east side of Interstate 15 from Great Falls to just north of Brady. Alternative 4 would cross to the west side of the interstate about 11 miles north of alternatives 2 and 3. All the alternatives have to cross to the west side of the interstate to reach the proposed border crossing. With respect to visual impacts, see response to comment 182. Although both the transmission line and wind turbines would introduce strong linear elements into viewed landscapes, is unlikely these structures would conceal or hide surrounding mountain ranges.



Hallsten, Greg

From: drexler@ntsg.umt.edu
Posted At: Tuesday, April 10, 2007 11:38 AM
Conversation: wind farms & transmission line MATL EIS.
Posted To: MATL

Subject: wind farms & transmission line MATL EIS.

Mr. Greg Hallsten, Director's Office, Montana Department of Environmental Quality

Please accept these comments on the proposed wind farms & transmission line MATL [illegible] Comment 225

One of my main concerns is that Montana's rural landscapes are not transformed into industrial-style energy production lands for wind, oil & gas and coal. The cumulative impacts that development would bring to rural Montana would be forever changind to the rural values of Montana. I see rural lifestyles being sacrificed and attacked all over our country, and I don't support this! The rural areas don't have the large population, and shouldn't have to pay the price to support overconsumptive populaces elsewhere.

I ask that before the MATL line is approved, DEQ and DOE should complete a broad regional programmatic EIS that addresses all aspects of wind farm & transmission and other energy development in northcentral Montana, including general areas that should or shouldn't be developed; long-term projections of overall cumulative impacts such as habitat fragmentation; economic disadvantages for Montanans compared to benefits to heavily subsidized wealthy corporations; private property rights & eminent domain & devaluation of neighboring property; guidelines & stipulations for the long-term & regulatory oversight; etc. Comment 226

DEQ should guarantee full public participation in siting decisions for locating all future wind farms and transmission lines. For example, let's keep proposed industrial-scale wind farms and transmission lines near Interstate Hwy 15, well east of the Rocky Mountain Front, to protect the viewshed of some of the most spectacular undeveloped scenery in North America. Comment 227

Once built, these structures are going to be there for lifetimes. Comment 228
As one local farmer commented at the public hearings, "Get it right the first time, or don't build it at all."

David Mildrexler
PO Box 7634
Missoula, MT 59807

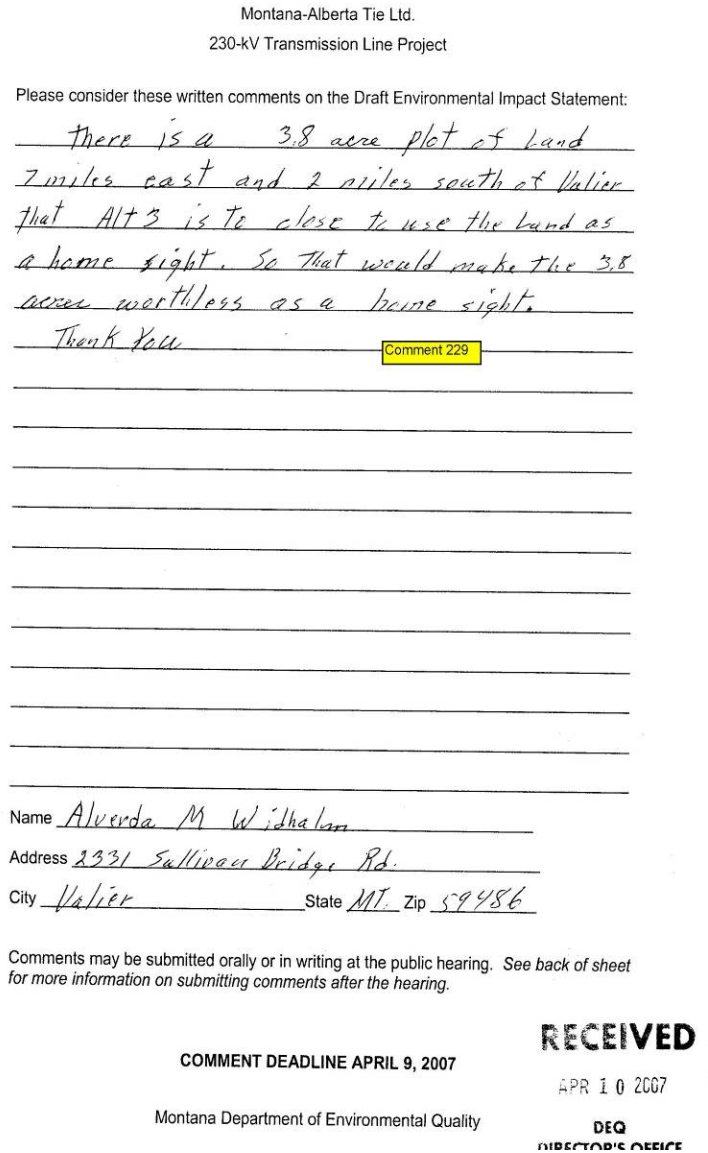
1

Response 225: Thank you for your opinion. See the revised discussions of cumulative impacts in Section4.1.

Response 226: See the revised discussions of cumulative impacts in response to comment 24 and in Chapter 4.

Response 227: Because the Montana legislature has removed DEQ's regulatory authority over the siting of most types of generation facilities, including wind farms, unless wind farm developers provide a public involvement process in their site selection or unless the wind farms would be located on public land, members of the public are not likely to have much input in wind farm location. See response to comment 23. Your comment on the location of wind farms is noted.

Response 228: Comment noted.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

Please consider these written comments on the Draft Environmental Impact Statement:

there is a 3.8 acre plot of land 7 miles east and 2 miles south of Valier that Alt 3 is to close to use the land as a home sight. So that would make the 3.8 acres worthless as a home sight.
Thank You

Comment 229

Name Alverda M Widhalm
Address 2331 Sullivan Bridge Rd.
City Valier State MT. Zip 59486

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

COMMENT DEADLINE APRIL 9, 2007

Montana Department of Environmental Quality

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DEQ
DIRECTOR'S OFFICE

Response 229: Where Alternative 3 passes next to this parcel, it would parallel the existing NorthWestern Energy Great Falls to Cut Bank 115-kV line. Neither the existing line nor the proposed line would preclude use of the 3.8 acres for a future home site. If a residence were present on this parcel, it would have Alternative 3 visible in the immediate foreground (within ¼ mile), similar to 34 existing residences along Alternative 3.

Hallsten, Greg

From: Gene & Linda Sentz [friends@3rivers.net]

Posted At: Wednesday, April 11, 2007 4:46 PM

Conversation: Please include this article as part of the official public comment for the proposed MATL transmission line

Posted To: MATL

Subject: Please include this article as part of the official public comment for the proposed MATL transmission line

Mr. Ring, Mr. Hallsten, et al: Comment 230

Thank you for extending the public comment period for MATL until April 30.

The article below about many Californians' dismay over power line construction through wildlife preserves and national forest is directly related to many Montanans' concerns about the proposed MATL transmission line and the potential large-scale windfarms it would spawn in the future, possibly along Montana's incomparably scenic Rocky Mountain Front and Glacier Park, the Crown of the Continent.

Please include this article as part of the official public comment for the MATL line.

Please address the issue of how maximum public involvement can occur in the siting of all future proposed windfarm locations.

Thank you,

Gene Sentz
Choteau, MT 59422-0763

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http://www.latimes.com/news/local/la-me-lapower9apr09,0,5023301.story?coll=la-home-headlines

California 'Green' project makes critics see red

The DWP's proposed energy corridor, to bring nonpolluting power to L.A., would traverse a national forest and wildlife preserves.
By Janet Wilson
Los Angeles Times Staff Writer

April 9, 2007

Highlighting the environmental pitfalls of harnessing "green" energy, Mayor Antonio Villaraigosa's push to import nonpolluting power to Los Angeles could require building power lines and transmission towers through a national forest, two desert wildlife preserves and a rustic hamlet used in countless westerns.

According to the Los Angeles Department of Water and Power, the 85-mile-long "Green Path" energy corridor designed to bring solar, geothermal and nuclear power from southeastern California and Arizona would slice across the Big Morongo Wildlife Preserve north of Palm Springs, Pioneertown near Yucca Valley, Pipes Canyon Wilderness Preserve and a corner of the San Bernardino National Forest before crossing over the Cajon Pass and connecting with existing power lines in Hesperia.

More than a dozen preservation and community groups have condemned the mayor and DWP for a plan that they say would destroy priceless vistas, natural areas and wildlife corridors.

"Not only is such energy consumption not 'green,' it is unacceptable under any name.... The ends cannot justify the means," Justin Augustine of the Center for Biological Diversity said in a letter to Villaraigosa last week.

City officials are up against tough new state laws and self-imposed deadlines to replace highly polluting coal-fired power with renewable energy produced by geothermal, wind and solar generators in the Imperial Valley, the Tehachapi Mountains in Kern County and elsewhere.

Villaraigosa did not return calls for comment. DWP commission President David Nahai insisted that no final decisions on a route had been made.

"This project is very much environmentally at its beginning stages," Nahai said.

The anger over the proposed route underscores challenges nationwide over how to ship wind, sun and steam power from remote rural reaches to booming urban centers.

"People do not like the way power lines look," said George Douglas, spokesman for the National Renewable Energy Laboratory, the research arm of the U.S. Department of Energy.

He said vast amounts of renewable resources exist across the country. Enough wind turbines could be built in North Dakota to power Chicago. One hundred square miles of desert solar panels in California, Nevada or New Mexico could power most of the United States.

But, Douglas said, "the chances it's going to happen are zero, because nobody's going to build the transmission lines. They're great big things that cost a lot of money, and people don't like them. They are unsightly — there's no two ways about it — and when you build them, they definitely disturb the land."

In Los Angeles, Villaraigosa said last year that he wanted to make the sprawling metropolis "the greenest city and cleanest city in America" and was pushing aggressively for 20% of the city's power to be renewable by 2010. Officials also chose not to renew a contract with a Utah coal plant that provides more than 40% of the city's power. That pact will expire in 2023.

The proposed Green Path is a key piece of the mayor's strategy. High-voltage lines in the transmission corridor would ship 800 megawatts of geothermal and solar power from near the Salton Sea and 400 megawatts of nuclear power from Arizona — enough to meet 10% of the city's current energy needs.

DWP officials said they decided on a "preferred alternative" in December after studying possible routes for more than a year. They said the route they chose would be the least intrusive to existing homes, tribal lands, national parks and wilderness areas.

Environmentalists scoffed at that claim. "We were just shocked," preservationist David Myers said of his reaction after looking at a map of the route.

Myers is head of The Wildlands Conservancy, a nonprofit group that has spent $50 million assembling private wildlife corridors and preserves close to Joshua Tree National Park, the San Bernardino National Forest and elsewhere, including Pipes Canyon.

Myers accused city officials of secretly planning the route, saying that conservationists learned about it two weeks ago from a staff member of the U.S. Bureau of Land Management.

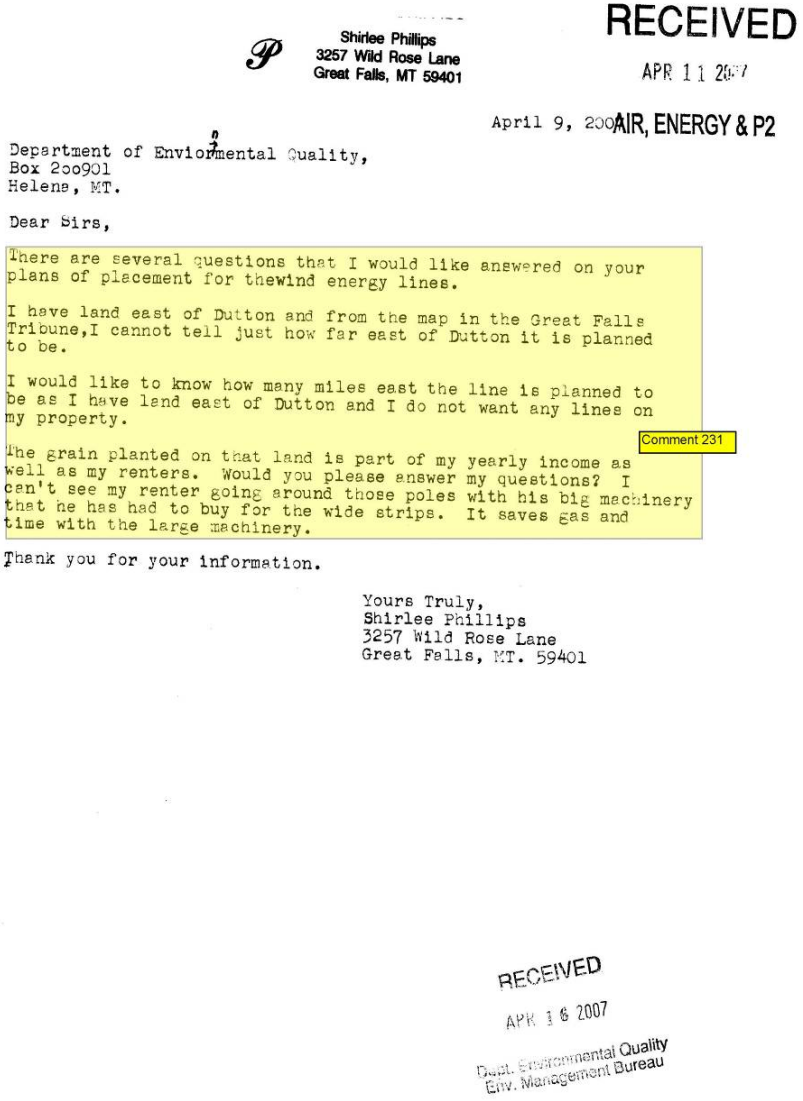
Nahai said there was no attempt at secrecy but acknowledged that Myers had a point. "I think we need to do a better job of outreach and a better job of communication," he said. "This is a new, environmentally committed administration. What we're trying to do is to diversify away from filthy coal to reduce greenhouse gas emissions, and do it in a way that is environmentally protective."

The DWP staff members said that there would be extensive public hearings before a final decision was made, and that they might "tweak" the map to try to move it away from the Pipes Canyon preserve, Pioneertown and the surrounding Sawtooth Mountains, which provided the backdrop for "The Cisco Kid" and many other western television shows and movies.

But Nahai added that no matter what route was chosen, there would be some environmental damage caused by the project. He said the priority was obtaining clean, renewable energy on a citywide basis to reduce greenhouse gases and other air pollution, as well as meeting power needs.

"Failure is not an option," he said. "What I can commit is that the department will do its utmost to minimize

Response 230: Thank you for the information. The articles have been added to the record. Also see response to comment 22.



Shirlee Phillips
3257 Wild Rose Lane
Great Falls, MT 59401

RECEIVED
APR 11 2007
AIR, ENERGY & P2

April 9, 2007

Department of Enviornmental Quality,
Box 200901
Helena, MT.

Dear Sirs,

There are several questions that I would like answered on your plans of placement for thewind energy lines.

I have land east of Dutton and from the map in the Great Falls Tribune,I cannot tell just how far east of Dutton it is planned to be.

I would like to know how many miles east the line is planned to be as I have land east of Dutton and I do not want any lines on my property.

Comment 231

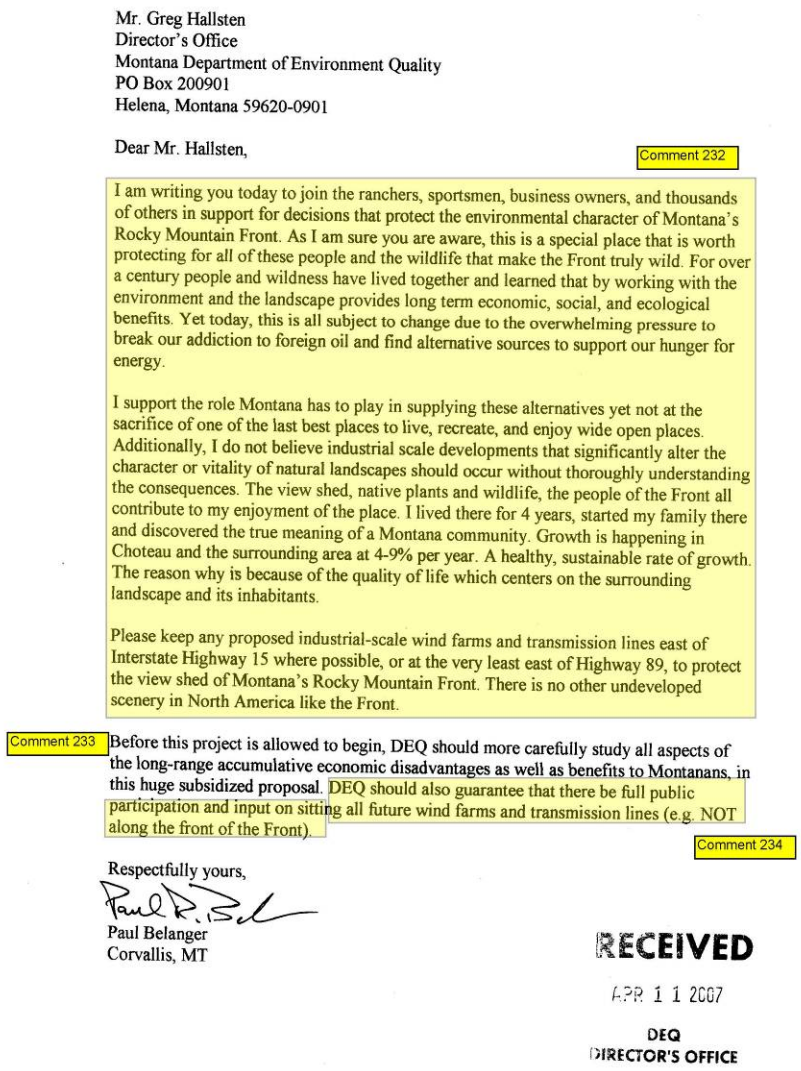
The grain planted on that land is part of my yearly income as well as my renters. Would you please answer my questions? I can't see my renter going around those poles with his big machinery that he has had to buy for the wide strips. It saves gas and time with the large machinery.

Thank you for your information.

Yours Truly,
Shirlee Phillips
3257 Wild Rose Lane
Great Falls, MT. 59401

RECEIVED
APR 16 2007
Dept. Environmental Quality
Env. Management Bureau

Response 231: The commenter was provided a map by DEQ on May 7, 2007. Alternatives 2 and 4 are approximately nine miles directly east of Dutton. Alternative 3 is approximately 12 miles directly east of Dutton.



Mr. Greg Hallsten
Director's Office
Montana Department of Environment Quality
PO Box 200901
Helena, Montana 59620-0901

Dear Mr. Hallsten,

Comment 232

I am writing you today to join the ranchers, sportsmen, business owners, and thousands of others in support for decisions that protect the environmental character of Montana's Rocky Mountain Front. As I am sure you are aware, this is a special place that is worth protecting for all of these people and the wildlife that make the Front truly wild. For over a century people and wildness have lived together and learned that by working with the environment and the landscape provides long term economic, social, and ecological benefits. Yet today, this is all subject to change due to the overwhelming pressure to break our addiction to foreign oil and find alternative sources to support our hunger for energy.

I support the role Montana has to play in supplying these alternatives yet not at the sacrifice of one of the last best places to live, recreate, and enjoy wide open places. Additionally, I do not believe industrial scale developments that significantly alter the character or vitality of natural landscapes should occur without thoroughly understanding the consequences. The view shed, native plants and wildlife, the people of the Front all contribute to my enjoyment of the place. I lived there for 4 years, started my family there and discovered the true meaning of a Montana community. Growth is happening in Choteau and the surrounding area at 4-9% per year. A healthy, sustainable rate of growth. The reason why is because of the quality of life which centers on the surrounding landscape and its inhabitants.

Please keep any proposed industrial-scale wind farms and transmission lines east of Interstate Highway 15 where possible, or at the very least east of Highway 89, to protect the view shed of Montana's Rocky Mountain Front. There is no other undeveloped scenery in North America like the Front.

Comment 233

Before this project is allowed to begin, DEQ should more carefully study all aspects of the long-range accumulative economic disadvantages as well as benefits to Montanans, in this huge subsidized proposal. DEQ should also guarantee that there be full public participation and input on sitting all future wind farms and transmission lines (e.g. NOT along the front of the Front).

Comment 234

Respectfully yours,

Paul Belanger
Corvallis, MT

RECEIVED
APR 11 2007
DEQ
DIRECTOR'S OFFICE

Response 232: Thank you for your comments. The agencies do not have legal authority to prohibit construction of wind farms in any areas. However, the agencies are not aware of any planned wind farms that would connect directly with the MATL project that would be built west of Highway 89. The wind farms that we have heard of that may interconnect with MATL's line and locations where anemometers have been seen, possibly indicating an interest in wind farms, are generally located between Highway 89 and Interstate 15 outside the Blackfeet Indian Reservation from the Conrad area northward. See Chapter 4 for more information.

In the Cut Bank area, the proposed line and McCormick Ranch wind farm, although located west of Interstate 15, would still be more than 50 miles from the eastern edge of Glacier National Park. This is beyond the range of visibility for wind farms from viewpoints in the park, as indicated in the revised discussion of cumulative impacts in Section 4.16.

Response 233: Impacts from wind farm development are described in the revised discussion of cumulative impacts in Chapter 4. Benefits and costs of the line are described in Sections 3.13 and 3.17.

Response 234: See response to comment 227.

Hallsten, Greg

From: Gene & Linda Sentz [friends@3rivers.net]
Posted At: Thursday, April 12, 2007 10:05 PM
Conversation: Comment on MATL - article from Montana Wildlife newsletter
Posted To: MATL
Subject: Comment on MATL - article from Montana Wildlife newsletter

Dear Tom & DEQ,
Please make this article and my comments about it a part of the public record for the proposed MATL line.
Thank you,
Gene Sentz, Choteau

To Craig Sharpe, author of the article below...
Craig,
Thanks for this excellent article. I'm glad you mentioned large industrial-scale windfarms --"great giant windmills"-- and "high power transmission lines," along with fossil fuel development, and thanks for remembering the Rocky Mountain Front.
Before a gold-rush-style of energy development occurs in Montana, a broad programmatic EIS should address the long-term cumulative impacts of industrializing the various large regions of our great state. The nation has to develop energy, but it should be done right, with the greatest of foresight, on a regional scale, and the best of our open spaces should be preserved for their beauty and for wildlife habitat.
Gene Sentz, Choteau

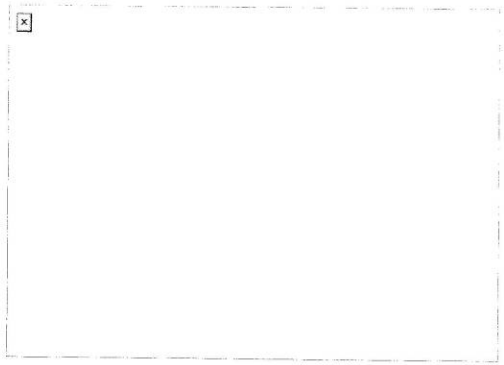
http://www.montanawildlife.com/Lead.html

MONTANA WILDLIFE
Newsletter of the Montana Wildlife Federation
Volume 31, Number 3
Cover article by Craig Sharpe, Executive Director

Comment 235

The Energy Race A Lot to Gain - A Lot to Lose

Response 235: Thank you for the information. The article has been added to the record. See the response to comment 24 for more discussion of programmatic reviews.



Energy development proposed on an unprecedented scale is creating new challenges to the future of wild lands, public lands, fish, wildlife, hunting and fishing throughout the Rocky Mountain West, in some of the most wild places – with some of the best hunting and fishing – in the United States. How is Montana planning for this energy race – for the increasing interest in our minerals and cheap leases? Will hunters and anglers consider energy development issues as beyond our control or outside our purview as '*environmental issues*'?

High power transmission lines, large coal fired generators, coal bed methane gas extraction fields, manufactured alternative fuels, oil and gas wells, great giant windmills, pipelines, carbon sequestration and gasification plants – the options and challenges for Montana are mind boggling.

A pace quickened by changes in the law under the 2005 Energy Act increasing demand for domestic sources for gas and oil for heating, electricity and fuel is triggering the sales of subsurface mineral rights the likes that Montana has never seen. The market – leases and purchases - is based primarily in speculation and they are being grabbed up with little fanfare or little attention by hunters and anglers. Montana could soon experience a new battalion of energy explorers. In the past 6-months alone, according to Montana Fish, Wildlife, and Parks, more than 200,000 acres of minerals have been leased.

"***Some of these leases are along the bluffs of the Missouri River, others are directly under critical, historically significant sage grouse leks,***" said Montana Fish, Wildlife and Parks, Planning Coordinator, T.O. Smith. "***There are leases being purchased in the Lima peaks, prime, world class elk country, leases located just outside Helena under conservation easements that were purchased in part with public funds and others dot their way from here to Great Falls to the Front,"*** he added. "***Currently Hunting District 300 has almost been leased out entirely."***

To the north of Montana, Alberta has undergone intense development over the past five years and shallow gas wells are now perched along the border with the U.S. near Havre, Malta and west toward Glasgow. To the south along the Rocky Mountain Front the state of Montana is continuing to sell leases. Further south, Wyoming is not only developing coal bed methane at an unnerving pace but also oil and deep gas. In their Johan Gas and Oil Field, wells have been approved every five acres effectively eliminating any unbroken ground for wildlife.

At the Annual Meeting of the Montana Chapter of the Wildlife Society, February 6-9, the theme of "Developing Energy and Sustaining Natural Systems-How Do We Do It?" fellow Wyoming wildlife biologists warned Montana biologists about how they believe their state is under siege — the Wyoming horror show. The BLM has already leased more than 90 percent of the public lands in the Upper Green River Valley. Ranchers, wildlife enthusiasts, sporting and conservation organizations are organizing mass protests against new BLM and industry efforts asking for leasing and drilling slowdowns.

4/12/2007

These are all frightening scenarios that can have severe, significant ecological effects, and socioeconomic impacts. Some may be short-term stop gap fire-fly concepts to help us deal with energy demands that will flicker-out with a new dawn - but they will all take their toll and leave their 'footprints'.

Individual '*footprints*' of a well, pad, pipeline, road, waste pit or water purification storage, or power generating wind farm may in some cases appear insignificant, relatively small. Nevertheless, combined with production and processing plants, sweetening plants, storage facilities, power lines and distribution systems – they all require networks of infrastructure that degrade or incrementally increase wildlife habitat losses. Development that will fragment habitat and corridors, pollute water, cause the loss of mating and nesting grounds, strip vegetative cover on calving and fawning grounds, degrade fish habitats and critical riparian vegetation, and increase big game vulnerability must be controlled.

Development - in this race - does not need to sacrifice our public lands, wildlife, and quality hunting and fishing opportunities. Hunters and anglers, just as we have influenced the outcomes of many elections, have a huge stake in this race. The national interest in becoming self-sufficient and the significant increase in the amount of leasing in Montana seems to indicate that many companies are now looking to the Big Sky State minerals for the future. Although no one can predict what reserves may prove out, or whether Montana can become a leader of clean, alternative fuels or whether we will have cleaner, more efficient, noxious emission sequestration facilities or gasification plants —what we do know about Montana and our wildlife rich lands, to paraphrase Will Rogers – nobody's making any more!

Access Lost

Casper, WY - The Star-Tribune (03-28-07) - *"To Drill or Hunt?"* Washington bureau reporter Noelle Straub was reported on a March 27 Congressional, House Natural Resources Committee hearing titled " *Access Denied: The growing conflict between fishing, hunting and energy development on federal lands."*

What committee members heard was that hunters and anglers face growing restrictions' on access to public lands and waters because escalating energy development has taken priority over fish and wildlife and habitat protection. Many areas in our public lands historically open to the public are now restricted or the habitat has been so compromised by mazes or webs of roads– little game thrives.

"***Energy development is not being done right on the public lands in the West,***" said Rollin Sparrowe, a Wyoming resident and former supervisor of U.S Fish and Wildlife Service research programs on Rocky Mountain Wildlife.

"***Throughout the country, working men and women are having a harder time finding public access to hunting and fishing areas, and those that are still available are often experiencing a decrease in the quality and quantity of fish and game,***" said William Hite, president of a plumbing and pipe-fitting trade union.

The absolutely packed chambers heard testimony from representatives of a newly created Union Sportsmen's Alliance (USA) of labor union members, conservationists and sportsmen. Approximately 70 percent of working men and women that comprise union membership are hunters and anglers, according to the group. The Colorado Wildlife Federation and Colorado Rep. Gibbs, the Wildlife Institute, TRCP, the Boone and Crockett Club and an energy executive from Questar Energy that owns the nations-second largest natural gas field in Wyoming also testified before the Oversight Committee.

While none of the testifying sportsmen called for an end to drilling, development or leasing they did instead all ask for greater balance, greater protection for sensitive wildlife areas and increased evaluation of the impacts before development is approved. According to a report to the committee, the Government Accountability Office (GAO) total for the number of drilling permits approved by the Bureau of Land Management has more than tripled since 2005. While the industry argues that there is a decrease in areas to drill on federal lands, the reality is that this is due to the millions of acres of public land already leased and not being yet drilled. In the meantime, companies are looking to states like Montana to lease everything they can before policies change and therefore, there is less land on the market.

Hunters, Anglers and Energy Development

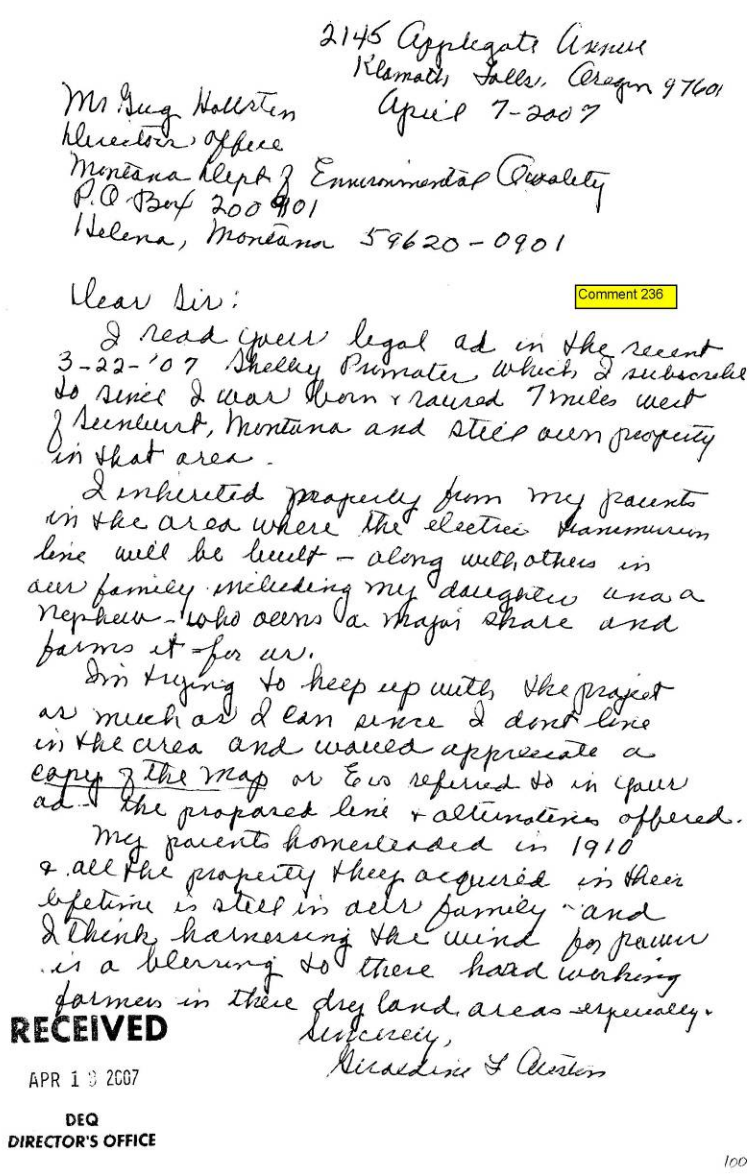
So, what does all this mean to Montana hunters, anglers and wildlife enthusiasts?

These are our lands – it is our wildlife – our quality of life – our Montana and we must take some ownership in how we deal with energy development, we must flex our muscle in this race today to determine the wildlife and hunting and fishing opportunities we enjoy tomorrow. WE can be the architects of our wildlife future but we need to get involved, we need to demand responsible energy development policies from our decision makers, and long-term planning that considers Montana's wildlife values. Hunters and anglers can no longer separate themselves from the issues as being – environmental, hook, or bullet.

"We think Montana deserves the best," said T.O. Smith. "***Montana needs our own comprehensive plan for energy development that addresses what we want for Montana – we deserve better than what we're seeing in other places.***"

Where development does take place, we need to ensure that proper mitigations, stipulations are in place, and enforced to protect our wildlife future.

As writer Richard Nelson puts it: "***After we've lost a natural place, it's gone for everyone – hikers, campers, boaters, bicyclists, animal watchers, fishers, hunters and wildlife – a complete and absolutely democratic tragedy of emptiness. For this reason, it's vital that we overcome our differences, find common ground in our shared love for the natural world, and work together to defend the wild.***



2145 Applegate Avenue
Klamath Falls, Oregon 97601
April 7-2007

Mr. Greg Hollstein
Director's Office
Montana Dept. of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

Comment 236

Dear Sir:

I read your legal ad in the recent 3-22-'07 Shelby Promoter which I subscribe to since I was born + raised 7 miles west of Sunburst, Montana and still own property in that area.

I inherited property from my parents in the area where the electric transmission line will be built – along with others in our family including my daughter and a nephew – who owns a major share and farms it for us.

I'm trying to keep up with the project as much as I can since I don't live in the area and would appreciate a copy of the map or E.I.S. referred to in your ad + the proposed line + alternatives offered.

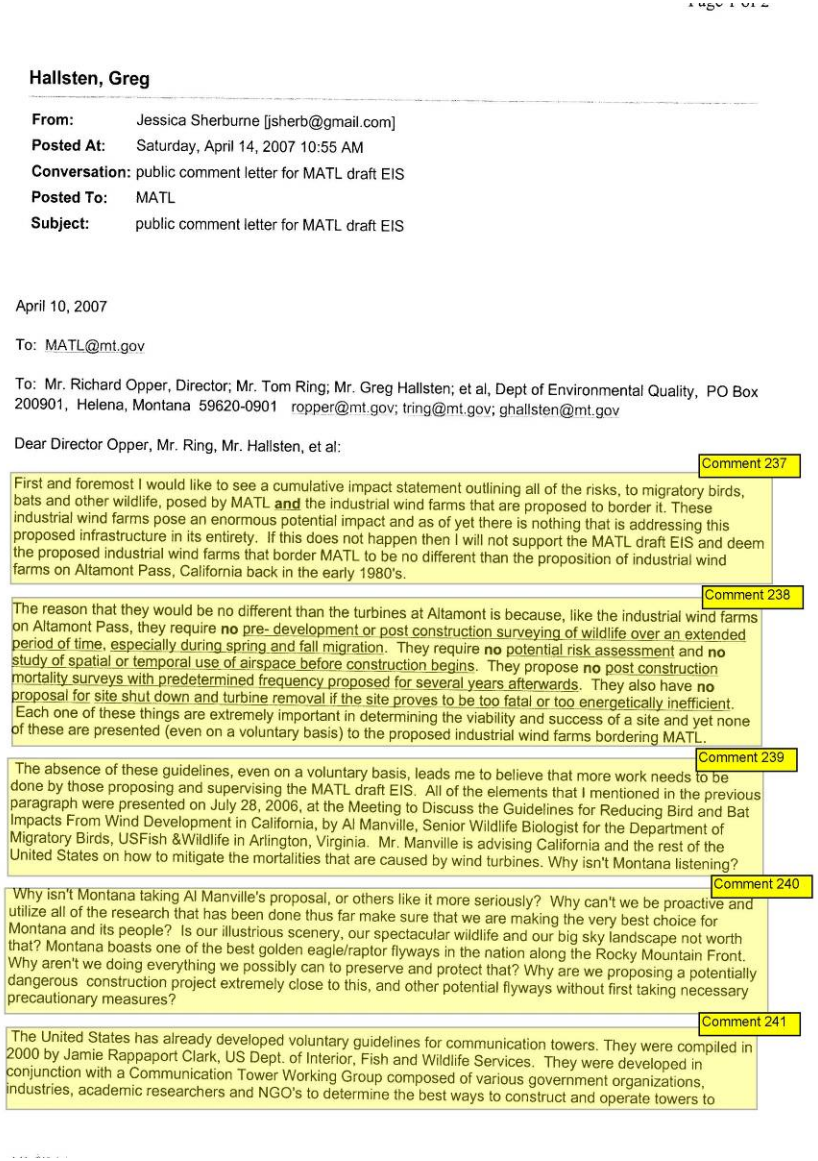
My parents homesteaded in 1910 & all the property they acquired in their lifetime is still in our family – and I think harnessing the wind for power is a blessing to those hard working farmers in those dry land areas especially.

Sincerely,
Geraldine S. Austen

RECEIVED
APR 13 2007
DEQ
DIRECTOR'S OFFICE

100

Response 236: Comment noted. A map showing alignments in the area in question was sent to Geraldine Austin.



Hallsten, Greg

From: Jessica Sherburne [jsherb@gmail.com]
Posted At: Saturday, April 14, 2007 10:55 AM
Conversation: public comment letter for MATL draft EIS
Posted To: MATL
Subject: public comment letter for MATL draft EIS

April 10, 2007

To: MATL@mt.gov

To: Mr. Richard Opper, Director; Mr. Tom Ring; Mr. Greg Hallsten; et al, Dept of Environmental Quality, PO Box 200901, Helena, Montana 59620-0901 ropper@mt.gov; tring@mt.gov; ghallsten@mt.gov

Dear Director Opper, Mr. Ring, Mr. Hallsten, et al:

Comment 237

First and foremost I would like to see a cumulative impact statement outlining all of the risks, to migratory birds, bats and other wildlife, posed by MATL **and** the industrial wind farms that are proposed to border it. These industrial wind farms pose an enormous potential impact and as of yet there is nothing that is addressing this proposed infrastructure in its entirety. If this does not happen then I will not support the MATL draft EIS and deem the proposed industrial wind farms that border MATL to be no different than the proposition of industrial wind farms on Altamont Pass, California back in the early 1980's.

Comment 238

The reason that they would be no different than the turbines at Altamont is because, like the industrial wind farms on Altamont Pass, they require **no** pre- development or post construction surveying of wildlife over an extended period of time, especially during spring and fall migration. They require **no** potential risk assessment and **no** study of spatial or temporal use of airspace before construction begins. They propose **no** post construction mortality surveys with predetermined frequency proposed for several years afterwards. They also have **no** proposal for site shut down and turbine removal if the site proves to be too fatal or too energetically inefficient. Each one of these things are extremely important in determining the viability and success of a site and yet none of these are presented (even on a voluntary basis) to the proposed industrial wind farms bordering MATL.

Comment 239

The absence of these guidelines, even on a voluntary basis, leads me to believe that more work needs to be done by those proposing and supervising the MATL draft EIS. All of the elements that I mentioned in the previous paragraph were presented on July 28, 2006, at the Meeting to Discuss the Guidelines for Reducing Bird and Bat Impacts From Wind Development in California, by Al Manville, Senior Wildlife Biologist for the Department of Migratory Birds, USFish &Wildlife in Arlington, Virginia. Mr. Manville is advising California and the rest of the United States on how to mitigate the mortalities that are caused by wind turbines. Why isn't Montana listening?

Comment 240

Why isn't Montana taking Al Manville's proposal, or others like it more seriously? Why can't we be proactive and utilize all of the research that has been done thus far make sure that we are making the very best choice for Montana and its people? Is our illustrious scenery, our spectacular wildlife and our big sky landscape not worth that? Montana boasts one of the best golden eagle/raptor flyways in the nation along the Rocky Mountain Front. Why aren't we doing everything we possibly can to preserve and protect that? Why are we proposing a potentially dangerous construction project extremely close to this, and other potential flyways without first taking necessary precautionary measures?

Comment 241

The United States has already developed voluntary guidelines for communication towers. They were compiled in 2000 by Jamie Rappaport Clark, US Dept. of Interior, Fish and Wildlife Services. They were developed in conjunction with a Communication Tower Working Group composed of various government organizations, industries, academic researchers and NGO's to determine the best ways to construct and operate towers to

Response 237: Comment noted. See responses to comment 20, Section 3.8, and the revised discussion of cumulative impacts in Section 4.9.

Response 238: Comment noted. Because the state does not have regulatory authority over wind farms, there is no agency that can require the studies you list. In order to place any controls on wind farm development, the legislature would have to authorize state agencies by law to implement them.

Response 239: While the suggested guidelines may have merit, the state has not adopted any of them and is unlikely to unless the legislature gives state agencies the authority to regulate wind farm development. Short of this, adherence to any guidelines would be voluntary on the part of developers.

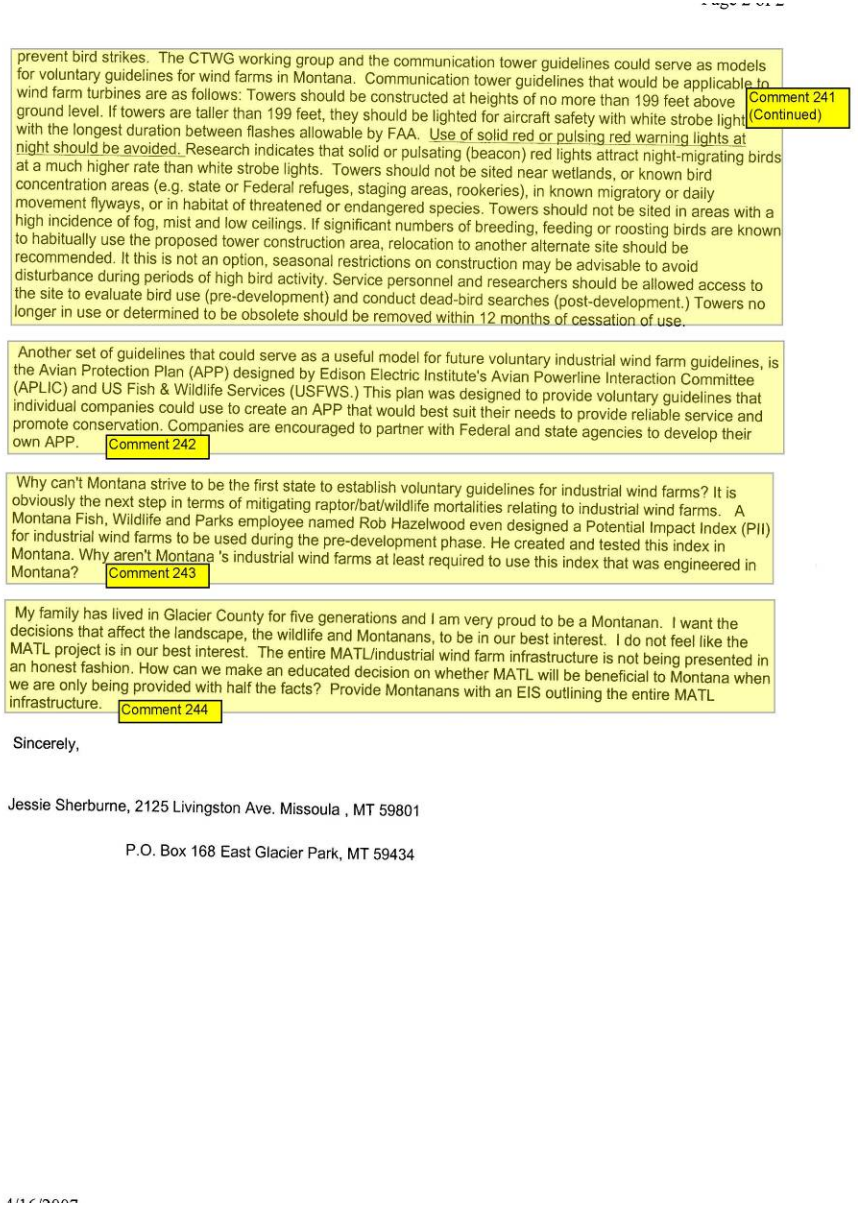
Response 240: DEQ is not requiring additional study as recommended by Al Manville and others because the Montana legislature removed DEQ's regulatory authority over the siting of most types of generating facilities, including wind farms. Possible study protocols pertaining to avian use and mortality are mentioned in the revised discussion of cumulative impacts in Chapter 4. Also note that on July 17, 2007, the *Committee Draft Report,* California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, was issued which may provide additional guidelines.

Response 241: Comment noted. With other voluntary guidelines in place and under current law, the agencies have no role in developing guidelines for wind farms. See response to comment 196 for a discussion of legislative direction. The desire for development of avian guidelines for development of wind farms has been referred to Montana Fish, Wildlife and Parks, Montana's wildlife management agency.

Response 242: Comment noted. See response to comment 239.

Response 243: See response to comment 241.

Response 244: Comment noted. The entire infrastructure proposed by MATL is described in the draft EIS. Additional discussions of cumulative impacts resulting from wind farms are presented in Section4.1.



prevent bird strikes. The CTWG working group and the communication tower guidelines could serve as models for voluntary guidelines for wind farms in Montana. Communication tower guidelines that would be applicable to wind farm turbines are as follows: Towers should be constructed at heights of no more than 199 feet above ground level. If towers are taller than 199 feet, they should be lighted for aircraft safety with white strobe lights with the longest duration between flashes allowable by FAA. Use of solid red or pulsing red warning lights at night should be avoided. Research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Towers should not be sited near wetlands, or known bird concentration areas (e.g. state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist and low ceilings. If significant numbers of breeding, feeding or roosting birds are known to habitually use the proposed tower construction area, relocation to another alternate site should be recommended. It this is not an option, seasonal restrictions on construction may be advisable to avoid disturbance during periods of high bird activity. Service personnel and researchers should be allowed access to the site to evaluate bird use (pre-development) and conduct dead-bird searches (post-development.) Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

Comment 241 (Continued)

Another set of guidelines that could serve as a useful model for future voluntary industrial wind farm guidelines, is the Avian Protection Plan (APP) designed by Edison Electric Institute's Avian Powerline Interaction Committee (APLIC) and US Fish & Wildlife Services (USFWS.) This plan was designed to provide voluntary guidelines that individual companies could use to create an APP that would best suit their needs to provide reliable service and promote conservation. Companies are encouraged to partner with Federal and state agencies to develop their own APP.

Comment 242

Why can't Montana strive to be the first state to establish voluntary guidelines for industrial wind farms? It is obviously the next step in terms of mitigating raptor/bat/wildlife mortalities relating to industrial wind farms. A Montana Fish, Wildlife and Parks employee named Rob Hazelwood even designed a Potential Impact Index (PII) for industrial wind farms to be used during the pre-development phase. He created and tested this index in Montana. Why aren't Montana 's industrial wind farms at least required to use this index that was engineered in Montana?

Comment 243

My family has lived in Glacier County for five generations and I am very proud to be a Montanan. I want the decisions that affect the landscape, the wildlife and Montanans, to be in our best interest. I do not feel like the MATL project is in our best interest. The entire MATL/industrial wind farm infrastructure is not being presented in an honest fashion. How can we make an educated decision on whether MATL will be beneficial to Montana when we are only being provided with half the facts? Provide Montanans with an EIS outlining the entire MATL infrastructure.

Comment 244

Sincerely,

Jessie Sherburne, 2125 Livingston Ave. Missoula , MT 59801

P.O. Box 168 East Glacier Park, MT 59434

Hallsten, Greg

From: ARTHUR PEARSON [artlorip@msn.com]
Posted At: Monday, April 30, 2007 7:24 AM
Conversation: MATL transmission line
Posted To: MATL
Subject: MATL transmission line

Comment 245

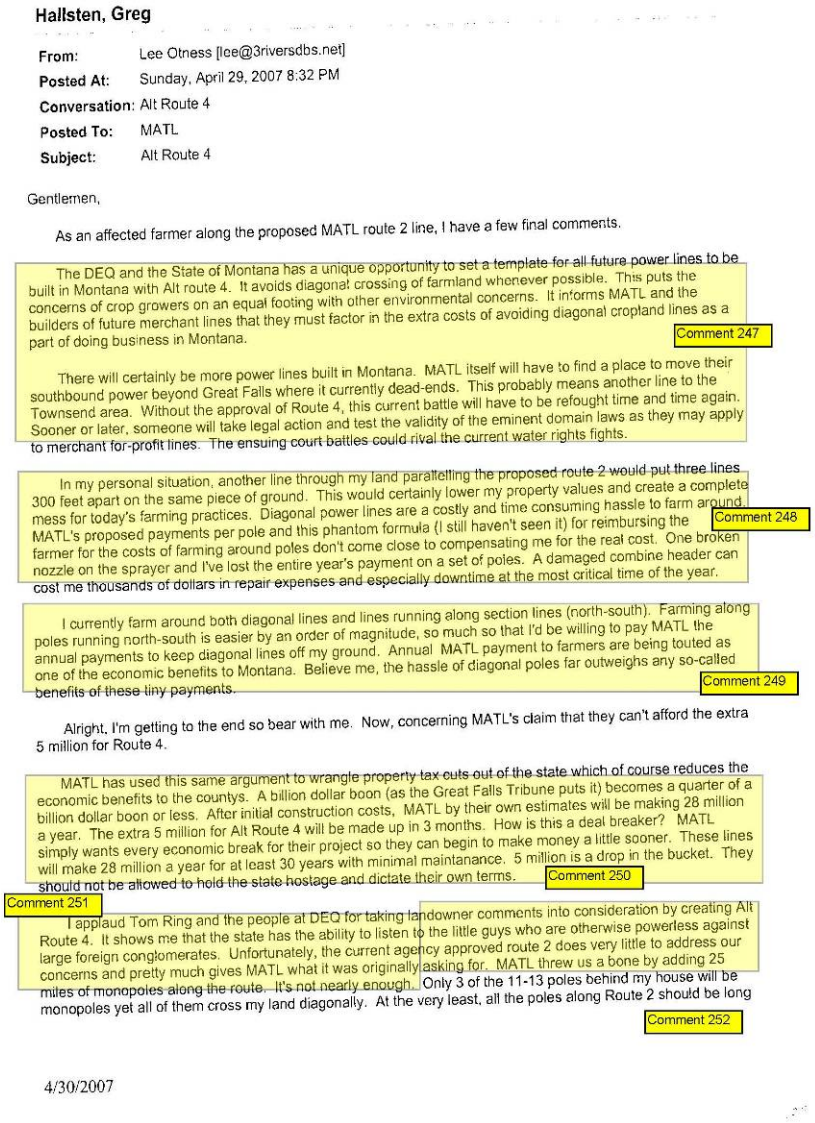
The proposed line (proposal #2) would be my first choice if it were to come to a vote. I do not favor
#4 at all. If #4 should be chosen, I can tell you the best place for the 1 1/2 miles of single pole yet to be designated, would be along the road on our farm. Another good reason to stick with line proposal #2 is the
saving of 7 Million in initial costs. If this line is to be put in, then do it right and use the 7Mil saved to help the
struggling small rural communities along the line. Comment 246

Arthur J. Pearson
2787 Primrose Rd N.
Conrad, MT 59425
(406)278-3033

4/30/2007

Response 245: Comment noted.

Response 246: Comment noted. The money saved from construction of Alternative 2 compared to other alternatives would not go to small rural communities in Montana. It would simply be money saved by the project developers.



Hallsten, Greg

From: Lee Otness [lee@3riversdbs.net]
Posted At: Sunday, April 29, 2007 8:32 PM
Conversation: Alt Route 4
Posted To: MATL
Subject: Alt Route 4

Gentlemen,

As an affected farmer along the proposed MATL route 2 line, I have a few final comments.

The DEQ and the State of Montana has a unique opportunity to set a template for all future power lines to be built in Montana with Alt route 4. It avoids diagonal crossing of farmland whenever possible. This puts the concerns of crop growers on an equal footing with other environmental concerns. It informs MATL and the builders of future merchant lines that they must factor in the extra costs of avoiding diagonal cropland lines as a part of doing business in Montana. Comment 247

There will certainly be more power lines built in Montana. MATL itself will have to find a place to move their southbound power beyond Great Falls where it currently dead-ends. This probably means another line to the Townsend area. Without the approval of Route 4, this current battle will have to be refought time and time again. Sooner or later, someone will take legal action and test the validity of the eminent domain laws as they may apply to merchant for-profit lines. The ensuing court battles could rival the current water rights fights.

In my personal situation, another line through my land paralleling the proposed route 2 would put three lines 300 feet apart on the same piece of ground. This would certainly lower my property values and create a complete mess for today's farming practices. Diagonal power lines are a costly and time consuming hassle to farm around. MATL's proposed payments per pole and this phantom formula (I still haven't seen it) for reimbursing the farmer for the costs of farming around poles don't come close to compensating me for the real cost. One broken nozzle on the sprayer and I've lost the entire year's payment on a set of poles. A damaged combine header can cost me thousands of dollars in repair expenses and especially downtime at the most critical time of the year. Comment 248

I currently farm around both diagonal lines and lines running along section lines (north-south). Farming along poles running north-south is easier by an order of magnitude, so much so that I'd be willing to pay MATL the annual payments to keep diagonal lines off my ground. Annual MATL payment to farmers are being touted as one of the economic benefits to Montana. Believe me, the hassle of diagonal poles far outweighs any so-called benefits of these tiny payments. Comment 249

Alright, I'm getting to the end so bear with me. Now, concerning MATL's claim that they can't afford the extra 5 million for Route 4.

MATL has used this same argument to wrangle property tax cuts out of the state which of course reduces the economic benefits to the countys. A billion dollar boon (as the Great Falls Tribune puts it) becomes a quarter of a billion dollar boon or less. After initial construction costs, MATL by their own estimates will be making 28 million a year. The extra 5 million for Alt Route 4 will be made up in 3 months. How is this a deal breaker? MATL simply wants every economic break for their project so they can begin to make money a little sooner. These lines will make 28 million a year for at least 30 years with minimal maintanance. 5 million is a drop in the bucket. They should not be allowed to hold the state hostage and dictate their own terms. Comment 250

Comment 251

I applaud Tom Ring and the people at DEQ for taking landowner comments into consideration by creating Alt Route 4. It shows me that the state has the ability to listen to the little guys who are otherwise powerless against large foreign conglomerates. Unfortunately, the current agency approved route 2 does very little to address our concerns and pretty much gives MATL what it was originally asking for. MATL threw us a bone by adding 25 miles of monopoles along the route. It's not nearly enough. Only 3 of the 11-13 poles behind my house will be monopoles yet all of them cross my land diagonally. At the very least, all the poles along Route 2 should be long Comment 252

4/30/2007

Response 247: Comment noted.

Response 248: Existing evidence suggests that in general land values are not significantly affected by transmission lines. To the extent that the MATL line would lower land values, that would be a cost to landowners. See the revised discussion on land values in Section 3.13. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for more information.

Response 249: See response to comment 248.

Response 250: Comment noted. The tax cuts would only apply to property taxes for the transmission line. See the revised discussion of tax revenues in Section 3.13. The new state tax structure passed in the 2007 Legislative Special Session would only apply to property taxes for transmission lines that transmit power generated from renewable resources such as wind and clean coal plants. These new lower tax rates would not apply to wind farms.

Response 251: Comment noted.

Response 252: Comment noted.

span monopoles.

Finally, Bob Williams stated in the Tribune that they've tried to work with farmers from the beginning. This is absolutely untrue. When we were first contacted we were told it was a take it or leave it contract. Only after we resisted their heavy handed intimdation and veiled threats did MATL start to listen to us. In the meetings we've had with MATL officials and their hired land agents, they have repeatedly dismissed our concerns about diagonal poles. Our only hope now is that the DEQ will approve Alt Route 4. MATL, a Canadian corporation, is refusing to be a good neighbor. It seems they must be forced to acknowledge the damage that Route 2 will cause our farming operations. You have the power to do this. You can stand up and tell MATL that the state's Number 1 industy (and generations of property tax paying landowners) need to have their concerns addressed. I sincerely hope that we can count on you.

Comment 253

Thanks for listening.

Lee Otness
Brady, Montana

4/30/2007

Response 253: Comment noted.

Hallsten, Greg

From: Hilger, Stephanie
Sent: Monday, April 30, 2007 9:31 AM
To: MATL
Subject: DEIS comments from MDT

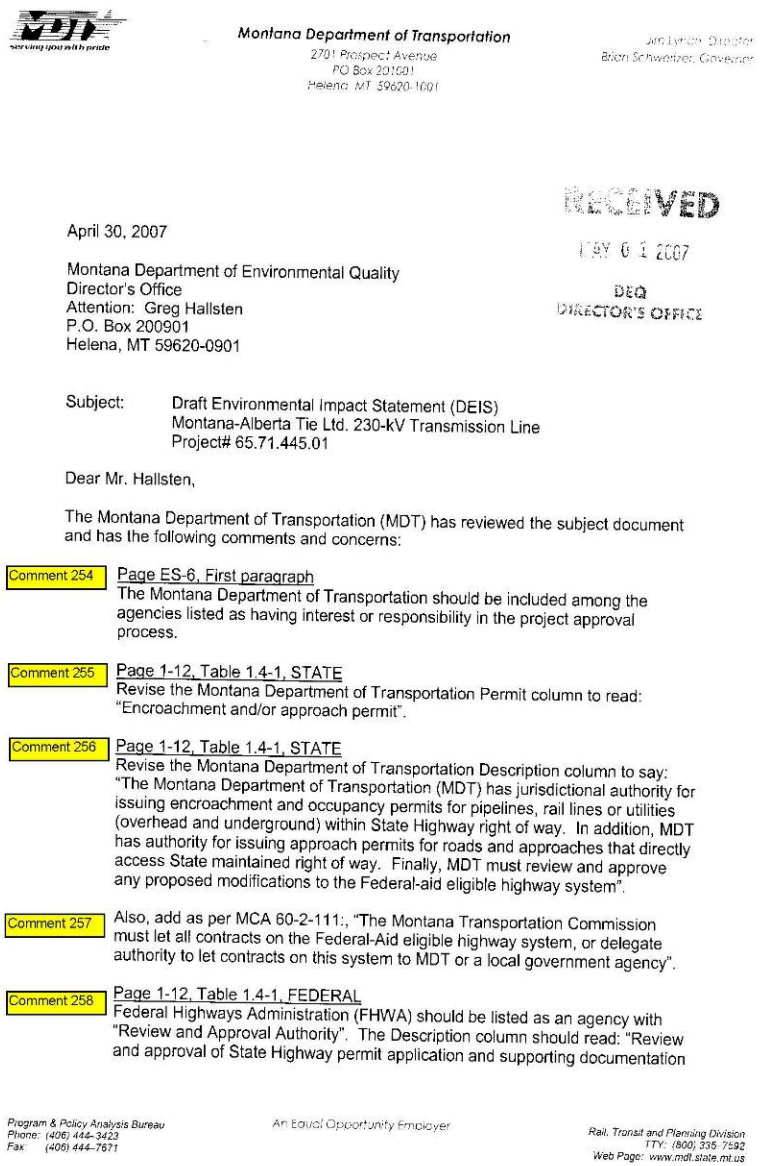
Attachments: DEIS_COMMENTS_043007.DOC

Greg,
Please accept MDT's comments on the Montana-Alberta Tie Ltd. 230-kV Transmission Line DEIS.
I am putting a signed copy in the mail today, also.
Please let me know if you have any questions.

Stephanie Hilger
Program & Policy Analysis Section
Rail, Transit & Planning Division
Montana Department of Transportation
(406) 444-6126

DEIS_COMMENTS_
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1



Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, MT 59620-1001

Jim Lynch, Director
Brian Schweitzer, Governor

RECEIVED
MAY 01 2007
DEQ
DIRECTOR'S OFFICE

April 30, 2007

Montana Department of Environmental Quality
Director's Office
Attention: Greg Hallsten
P.O. Box 200901
Helena, MT 59620-0901

Subject: Draft Environmental Impact Statement (DEIS)
Montana-Alberta Tie Ltd. 230-kV Transmission Line
Project# 65.71.445.01

Dear Mr. Hallsten,

The Montana Department of Transportation (MDT) has reviewed the subject document and has the following comments and concerns:

Comment 254 Page ES-6, First paragraph
The Montana Department of Transportation should be included among the agencies listed as having interest or responsibility in the project approval process.

Comment 255 Page 1-12, Table 1.4-1, STATE
Revise the Montana Department of Transportation Permit column to read: "Encroachment and/or approach permit".

Comment 256 Page 1-12, Table 1.4-1, STATE
Revise the Montana Department of Transportation Description column to say: "The Montana Department of Transportation (MDT) has jurisdictional authority for issuing encroachment and occupancy permits for pipelines, rail lines or utilities (overhead and underground) within State Highway right of way. In addition, MDT has authority for issuing approach permits for roads and approaches that directly access State maintained right of way. Finally, MDT must review and approve any proposed modifications to the Federal-aid eligible highway system".

Comment 257 Also, add as per MCA 60-2-111:, "The Montana Transportation Commission must let all contracts on the Federal-Aid eligible highway system, or delegate authority to let contracts on this system to MDT or a local government agency".

Comment 258 Page 1-12, Table 1.4-1, FEDERAL
Federal Highways Administration (FHWA) should be listed as an agency with "Review and Approval Authority". The Description column should read: "Review and approval of State Highway permit application and supporting documentation

Program & Policy Analysis Bureau
Phone: (406) 444-3423
Fax (406) 444-7671

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Rail, Transit and Planning Division
TTY: (800) 335-7592
Web Page: www.mdt.state.mt.us

Response 254: Under the Major Facility Siting Act, no further state permits are required after a certificate has been issued. "(1)Notwithstanding any other law, a state or regional agency or municipality or other local government may not require any approval, consent, permit, certificate, or other condition for the construction, operation, or maintenance of a facility authorized by a certificate issued pursuant to this chapter, except that the department and board retain the authority that they have or may be granted to determine compliance of the proposed facility with state and federal standards and implementation plans for air and water quality and to enforce those standards. (2) This chapter does not prevent the application of state laws for the protection of employees engaged in the construction, operation, or maintenance of a facility." (75-20-401, MCA).

DEQ addresses the need to safely construct transmission lines across roads in its environmental specifications for the project (Appendix F, Section 2.6) which require consultation with Montana Department of Transportation.

Response 255: See response to comment 254.

Response 256: See response to comment 254 and revisions to Table 1.4-1.

Response 257: The agencies agree with the suggested change.

Response 258: The agencies agree with the suggested change.

for transmission lines in the Interstate Highway System right of way". The Authority column should state "23 CFR Part 645".

Comment 259 — Page 2-16, first bullet, *Pre-Construction*
MDT permitting should be included as a transmission line pre-construction task.

Comment 260 — Page 2-16, fourth bullet, *Access Planning and Preparation*
Please add: "An encroachment permit must be obtained from MDT before entering MDT right of way for constructing, operating, and maintaining the transmission line".

Comment 261 — Page 2-16, fifth bullet, *Delivery and Assembly*
It should be added: "If transporting a load or if there is equipment that exceeds the legal dimensions on Montana's state highway system, over-dimensional permits for width, length or height or any combination of width, length and height are required from MDT".

Comment 262 — Throughout the document
When describing the route of each alternative, all State Highways impacted by each alternative should be listed.

Comment 263 — Throughout the document
It should be stated that no poles will be allowed in MDT right of way.

Thank you for the opportunity to comment on this draft document. If you have any questions or need clarification, please don't hesitate to contact me at (406) 444-6126.

Sincerely,

Stephanie Hilger, Planner
Program & Policy Analysis Section
Rail, Transit & Planning Division

Cc: Sandra Straehl, Rail, Transit & Planning Administrator
Mick Johnson, Great Falls District Administrator
Steve Prinzing, P.E., Great Falls Engineering Services Engineer
Jim Skinner, Program & Policy Analysis Manager
Dan Smith, P.E., Environmental Services Acting Bureau Chief
Dick Turner, Multimodal Planning Bureau Chief
Lynn Zanto, Statewide and Urban Planning Supervisor
Walt Scott, Right-of-Way Utilities Section Supervisor
File

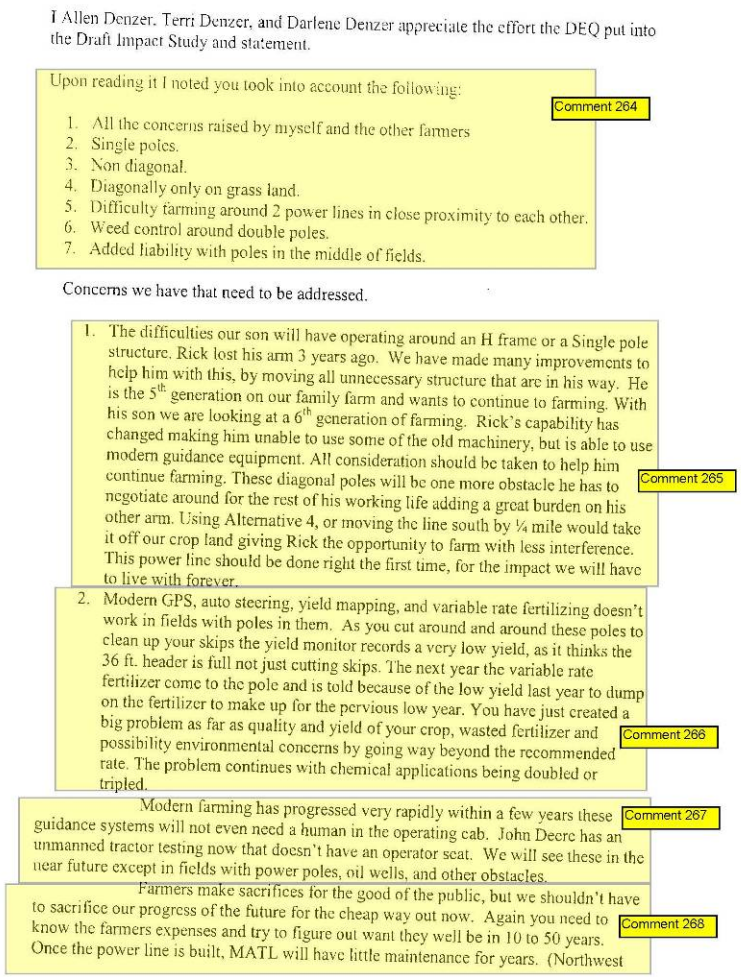
Response 259: See response to comment 254.

Response 260: See response to comment 254.

Response 261: Your suggested language has been added to Section 3.1.2. The Major Facility Siting Act does not prevent the Department of Transportation from requiring permits for oversized loads operating off the proposed transmission line right of way.

Response 262: The agencies agree with the suggested change. See Table 3.1-6 for a list of highways crossed by each alternative and the crossing points.

Response 263: See response to comment 254. Also note that state law allows electric power lines to be built on public rights of way as long as the lines are constructed in a manner as not to incommode or endanger the use of roads (see 69-4-101, MCA).



I Allen Denzer, Terri Denzer, and Darlene Denzer appreciate the effort the DEQ put into the Draft Impact Study and statement.

Upon reading it I noted you took into account the following:

Comment 264

1. All the concerns raised by myself and the other farmers
2. Single poles.
3. Non diagonal.
4. Diagonally only on grass land.
5. Difficulty farming around 2 power lines in close proximity to each other.
6. Weed control around double poles.
7. Added liability with poles in the middle of fields.

Concerns we have that need to be addressed.

1. The difficulties our son will have operating around an H frame or a Single pole structure. Rick lost his arm 3 years ago. We have made many improvements to help him with this, by moving all unnecessary structure that are in his way. He is the 5th generation on our family farm and wants to continue to farming. With his son we are looking at a 6th generation of farming. Rick's capability has changed making him unable to use some of the old machinery, but is able to use modern guidance equipment. All consideration should be taken to help him continue farming. These diagonal poles will be one more obstacle he has to negotiate around for the rest of his working life adding a great burden on his other arm. Using Alternative 4, or moving the line south by ¼ mile would take it off our crop land giving Rick the opportunity to farm with less interference. This power line should be done right the first time, for the impact we will have to live with forever.

Comment 265

2. Modern GPS, auto steering, yield mapping, and variable rate fertilizing doesn't work in fields with poles in them. As you cut around and around these poles to clean up your skips the yield monitor records a very low yield, as it thinks the 36 ft. header is full not just cutting skips. The next year the variable rate fertilizer come to the pole and is told because of the low yield last year to dump on the fertilizer to make up for the pervious low year. You have just created a big problem as far as quality and yield of your crop, wasted fertilizer and possibility environmental concerns by going way beyond the recommended rate. The problem continues with chemical applications being doubled or tripled.

Comment 266

Modern farming has progressed very rapidly within a few years these guidance systems will not even need a human in the operating cab. John Deere has an unmanned tractor testing now that doesn't have an operator seat. We will see these in the near future except in fields with power poles, oil wells, and other obstacles.

Comment 267

Farmers make sacrifices for the good of the public, but we shouldn't have to sacrifice our progress of the future for the cheap way out now. Again you need to know the farmers expenses and try to figure out want they well be in 10 to 50 years. Once the power line is built, MATL will have little maintenance for years. (Northwest

Comment 268

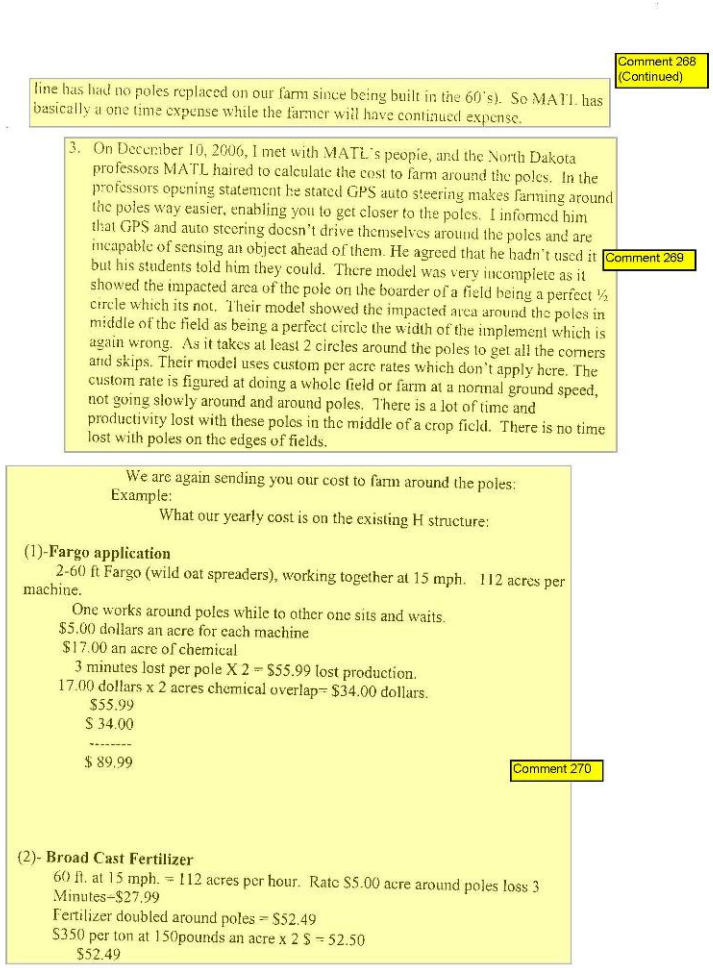
Response 264: Comment noted.

Response 265: Comment noted. The agencies have worked with the Denzers and their neighbors to develop possible routing options to reduce diagonal alignments through crop land in this area. Section 3.16 describes the mileage of various land use categories crossed by the proposed action and the Southeast of Conrad local routing option. In general terms, the option would use pasture and range land to a larger extent than the proposed action and thereby avoid crossing as much cropland. The costs of this local routing option are not great and the agencies are inclined to prefer it over the proposed action.

Response 266: Comment noted.

Response 267: Comment noted. See the revised discussion of potential impacts to use of GPS assisted farming equipment and the discussion of impacts to farming in Sections 3.1 and 3.4 of this document and the response to comment 599.

Response 268: Comment noted. See the revised discussion of potential costs of farming around structures in Section 3.13.



line has had no poles replaced on our farm since being built in the 60's). So MATL has basically a one time expense while the farmer will have continued expense.

Comment 268 (Continued)

3. On December 10, 2006, I met with MATL's people, and the North Dakota professors MATL haired to calculate the cost to farm around the poles. In the professors opening statement he stated GPS auto steering makes farming around the poles way easier, enabling you to get closer to the poles. I informed him that GPS and auto steering doesn't drive themselves around the poles and are incapable of sensing an object ahead of them. He agreed that he hadn't used it but his students told him they could. There model was very incomplete as it showed the impacted area of the pole on the boarder of a field being a perfect ½ circle which its not. Their model showed the impacted area around the poles in middle of the field as being a perfect circle the width of the implement which is again wrong. As it takes at least 2 circles around the poles to get all the corners and skips. Their model uses custom per acre rates which don't apply here. The custom rate is figured at doing a whole field or farm at a normal ground speed, not going slowly around and around poles. There is a lot of time and productivity lost with these poles in the middle of a crop field. There is no time lost with poles on the edges of fields.

Comment 269

We are again sending you our cost to farm around the poles:
Example:
What our yearly cost is on the existing H structure:

(1)-**Fargo application**
2-60 ft Fargo (wild oat spreaders), working together at 15 mph. 112 acres per machine.
One works around poles while to other one sits and waits.
$5.00 dollars an acre for each machine
$17.00 an acre of chemical
3 minutes lost per pole X 2 = $55.99 lost production.
17.00 dollars x 2 acres chemical overlap= $34.00 dollars.
$55.99
$ 34.00

$ 89.99

Comment 270

(2)- **Broad Cast Fertilizer**
60 ft. at 15 mph. = 112 acres per hour. Rate $5.00 acre around poles loss 3 Minutes=$27.99
Fertilizer doubled around poles = $52.49
$350 per ton at 150pounds an acre x 2 $ = 52.50
$52.49

Response 269: The information provided was considered in quantifying the costs of the line to farmers.

Response 270: The information provided to the agencies was considered as the costs of the line to farmers were quantified.

$52.50

$80.49

Comment 270 (Continued)

(3) **Pre Plant Spray**
3 Sprayers:
90ft. at 12 mph at $5.00 per acre 116 acre per hour
90 ft at 12 mph at $5.00 per acre 116 acre per hour
60 ft at 12 mph at $5.00 per acre 87 acre per hour
One sprayer goes around poles while the other 2 wait at in line for the first to get back in the row. Time lost 9 minutes =$230.00
Chemical = $ 9.18

$248.43

(4) **Heavy Harrow**
60 ft. at 14 mph = 105 acres per hour
$5.00 per acre, 3 minutes lost =
$26.25

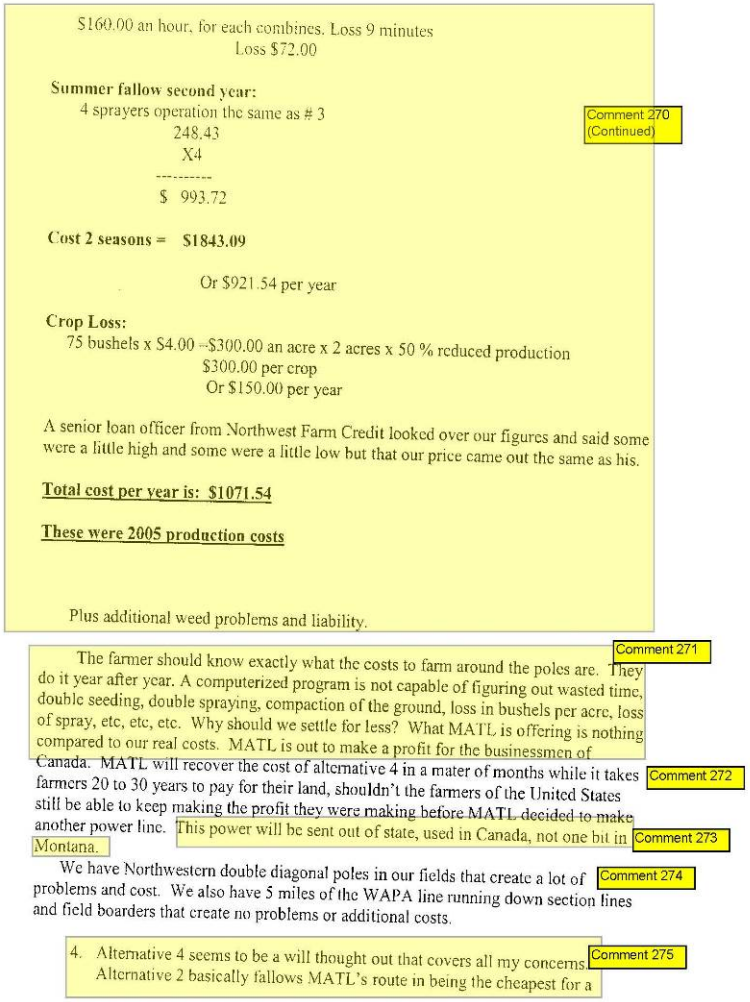
(5) **Seeding:**
57 ft. air drill at 6 mph, $42.75 acre per hour at $7.00 per acre
525 hp tractor
3 minutes lost $14.97
Seed and fertilizer $24.00 x 2 =$48.00
$14.96
$ 48.00

$62.96

(6) **Weed spraying same as #3 for time and machinery**
Time $239.25
Chemical
$15.00 x 2 $30.00

$269.25

(7) **Harvest:**
3 combines; tractor and grain cart working together totals $1,000.00
Investment one cuts around poles while the others wait. Operating cost of



$160.00 an hour, for each combines. Loss 9 minutes
Loss $72.00

Summer fallow second year:
4 sprayers operation the same as # 3
248.43
X4

$ 993.72

Comment 270 (Continued)

Cost 2 seasons = $1843.09

Or $921.54 per year

Crop Loss:
75 bushels x $4.00 --$300.00 an acre x 2 acres x 50 % reduced production
$300.00 per crop
Or $150.00 per year

A senior loan officer from Northwest Farm Credit looked over our figures and said some were a little high and some were a little low but that our price came out the same as his.

Total cost per year is: $1071.54

These were 2005 production costs

Plus additional weed problems and liability.

Comment 271

The farmer should know exactly what the costs to farm around the poles are. They do it year after year. A computerized program is not capable of figuring out wasted time, double seeding, double spraying, compaction of the ground, loss in bushels per acre, loss of spray, etc, etc, etc. Why should we settle for less? What MATL is offering is nothing compared to our real costs. MATL is out to make a profit for the businessmen of Canada. MATL will recover the cost of alternative 4 in a mater of months while it takes farmers 20 to 30 years to pay for their land, shouldn't the farmers of the United States still be able to keep making the profit they were making before MATL decided to make another power line. This power will be sent out of state, used in Canada, not one bit in Montana.

Comment 272

Comment 273

We have Northwestern double diagonal poles in our fields that create a lot of problems and cost. We also have 5 miles of the WAPA line running down section lines and field boarders that create no problems or additional costs.

Comment 274

4. Alternative 4 seems to be a will thought out that covers all my concerns. Alternative 2 basically fallows MATL's route in being the cheapest for a

Comment 275

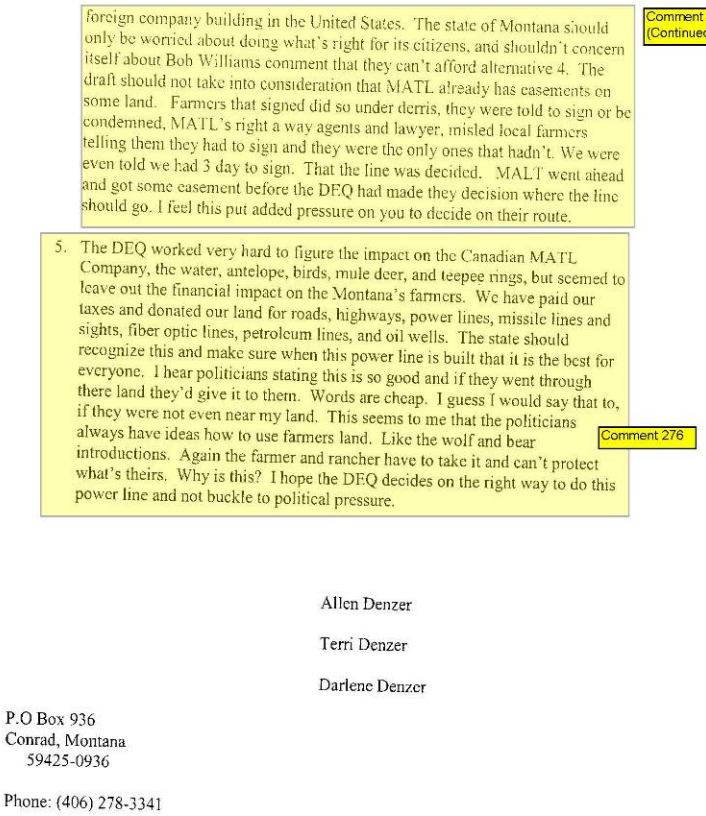
Response 271: The information provided was considered as the costs of the line to farmers were quantified.

Response 272: Comment noted.

Response 273: Power could flow both ways on the MATL line. MATL's 300 MW of southbound capacity is underpinned by long-term contracts but these contracts continue to be subject to the shippers' confirmation of acceptance. Also see the revised discussion in section 3.13.

Response 274: Comment noted.

Response 275: Comment noted.



foreign company building in the United States. The state of Montana should only be worried about doing what's right for its citizens, and shouldn't concern itself about Bob Williams comment that they can't afford alternative 4. The draft should not take into consideration that MATL already has easements on some land. Farmers that signed did so under derris, they were told to sign or be condemned, MATL's right a way agents and lawyer, misled local farmers telling them they had to sign and they were the only ones that hadn't. We were even told we had 3 day to sign. That the line was decided. MALT went ahead and got some easement before the DEQ had made they decision where the line should go. I feel this put added pressure on you to decide on their route.

Comment 275 (Continued)

5. The DEQ worked very hard to figure the impact on the Canadian MATL Company, the water, antelope, birds, mule deer, and teepee rings, but seemed to leave out the financial impact on the Montana's farmers. We have paid our taxes and donated our land for roads, highways, power lines, missile lines and sights, fiber optic lines, petroleum lines, and oil wells. The state should recognize this and make sure when this power line is built that it is the best for everyone. I hear politicians stating this is so good and if they went through there land they'd give it to them. Words are cheap. I guess I would say that to, if they were not even near my land. This seems to me that the politicians always have ideas how to use farmers land. Like the wolf and bear introductions. Again the farmer and rancher have to take it and can't protect what's theirs. Why is this? I hope the DEQ decides on the right way to do this power line and not buckle to political pressure.

Comment 276

Allen Denzer

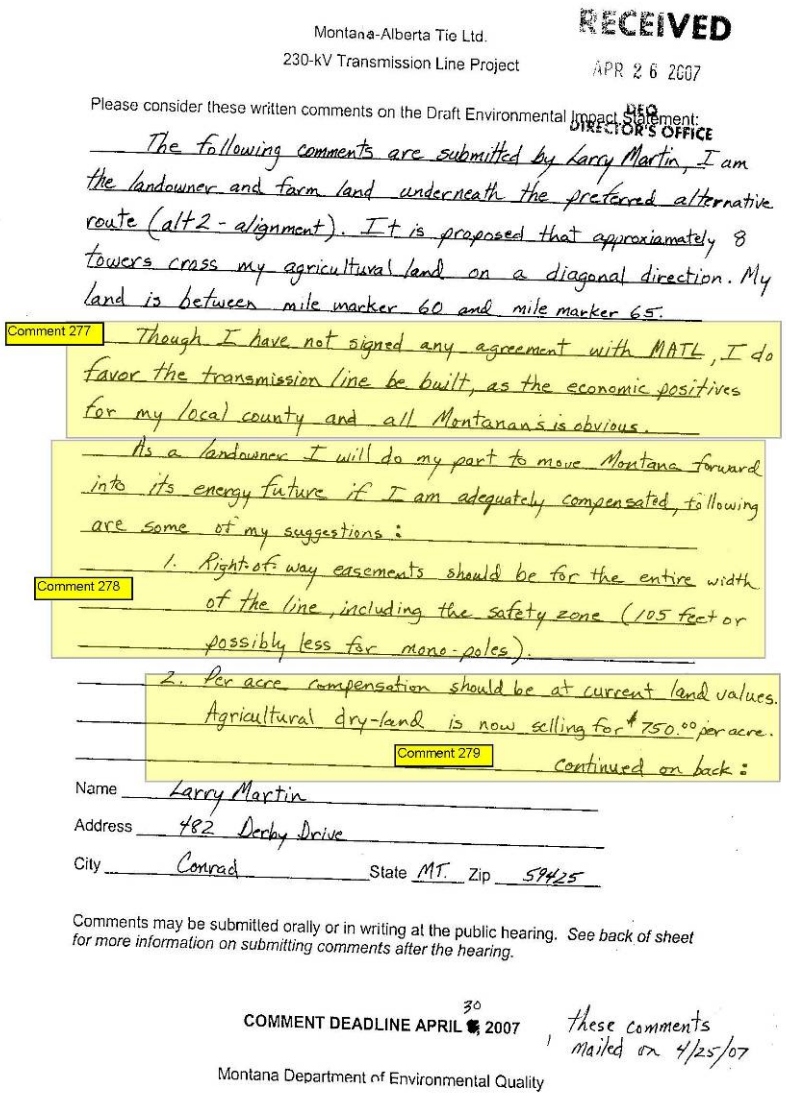
Terri Denzer

Darlene Denzer

P.O Box 936
Conrad, Montana
59425-0936

Phone: (406) 278-3341

Response 276: Comment noted. See the revised discussion of potential costs of farming around structures in Section 3.13.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

RECEIVED
APR 26 2007
DEQ DIRECTOR'S OFFICE

Please consider these written comments on the Draft Environmental Impact Statement:

The following comments are submitted by Larry Martin, I am the landowner and farm land underneath the preferred alternative route (alt2 - alignment). It is proposed that approximately 8 towers cross my agricultural land on a diagonal direction. My land is between mile marker 60 and mile marker 65.

Comment 277

Though I have not signed any agreement with MATL, I do favor the transmission line be built, as the economic positives for my local county and all Montanans is obvious.

As a landowner I will do my part to move Montana forward into its energy future if I am adequately compensated, following are some of my suggestions:

Comment 278

1. Right-of-way easements should be for the entire width of the line, including the safety zone (105 feet or possibly less for mono-poles).

2. Per acre compensation should be at current land values. Agricultural dry-land is now selling for $750.00 per acre.

Comment 279

continued on back:

Name Larry Martin
Address 482 Derby Drive
City Conrad State MT. Zip 59425

Comments may be submitted orally or in writing at the public hearing. *See back of sheet for more information on submitting comments after the hearing.*

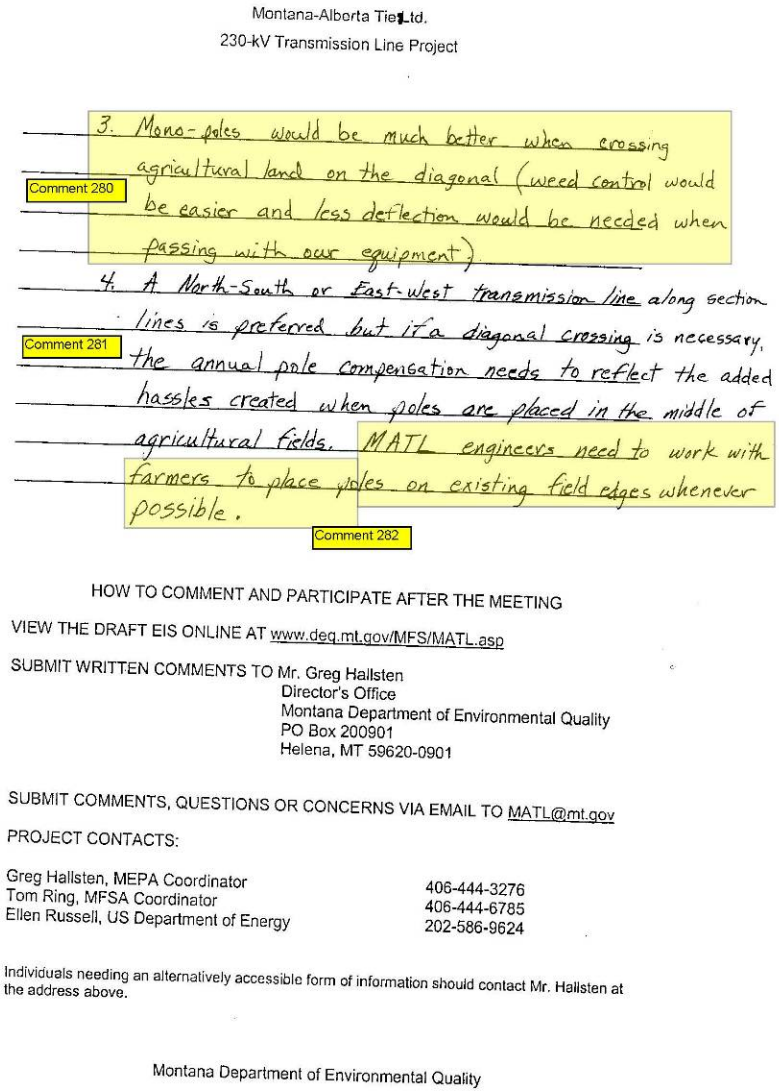
COMMENT DEADLINE APRIL 30 2007, these comments mailed on 4/25/07

Montana Department of Environmental Quality

Response 277: Comment noted.

Response 278: Comment noted.

Response 279: Comment noted.



Montana-Alberta Tie Ltd.
230-kV Transmission Line Project

3. Mono-poles would be much better when crossing agricultural land on the diagonal (weed control would be easier and less deflection would be needed when passing with our equipment)

Comment 280

4. A North-South or East-West transmission line along section lines is preferred but if a diagonal crossing is necessary, the annual pole compensation needs to reflect the added hassles created when poles are placed in the middle of agricultural fields. MATL engineers need to work with farmers to place poles on existing field edges whenever possible.

Comment 281

Comment 282

HOW TO COMMENT AND PARTICIPATE AFTER THE MEETING

VIEW THE DRAFT EIS ONLINE AT www.deq.mt.gov/MFS/MATL.asp

SUBMIT WRITTEN COMMENTS TO Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

SUBMIT COMMENTS, QUESTIONS OR CONCERNS VIA EMAIL TO MATL@mt.gov

PROJECT CONTACTS:

Greg Hallsten, MEPA Coordinator	406-444-3276
Tom Ring, MFSA Coordinator	406-444-6785
Ellen Russell, US Department of Energy	202-586-9624

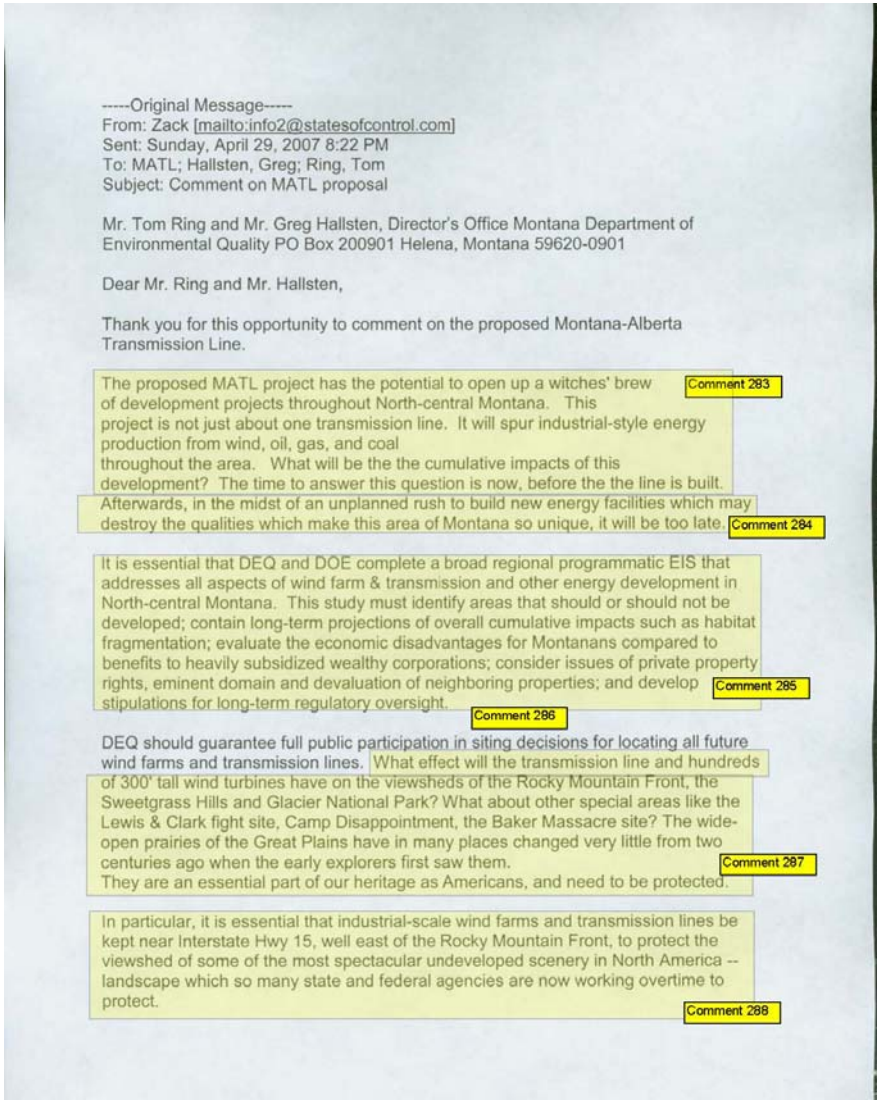
Individuals needing an alternatively accessible form of information should contact Mr. Hallsten at the address above.

Montana Department of Environmental Quality

Response 280: Comment noted.

Response 281: Comment noted.

Response 282: Comment noted.



-----Original Message-----
From: Zack [mailto:info2@statesofcontrol.com]
Sent: Sunday, April 29, 2007 8:22 PM
To: MATL; Hallsten, Greg; Ring, Tom
Subject: Comment on MATL proposal

Mr. Tom Ring and Mr. Greg Hallsten, Director's Office Montana Department of Environmental Quality PO Box 200901 Helena, Montana 59620-0901

Dear Mr. Ring and Mr. Hallsten,

Thank you for this opportunity to comment on the proposed Montana-Alberta Transmission Line.

The proposed MATL project has the potential to open up a witches' brew of development projects throughout North-central Montana. This project is not just about one transmission line. It will spur industrial-style energy production from wind, oil, gas, and coal throughout the area. What will be the the cumulative impacts of this development? The time to answer this question is now, before the the line is built. Afterwards, in the midst of an unplanned rush to build new energy facilities which may destroy the qualities which make this area of Montana so unique, it will be too late.

Comment 283

Comment 284

It is essential that DEQ and DOE complete a broad regional programmatic EIS that addresses all aspects of wind farm & transmission and other energy development in North-central Montana. This study must identify areas that should or should not be developed; contain long-term projections of overall cumulative impacts such as habitat fragmentation; evaluate the economic disadvantages for Montanans compared to benefits to heavily subsidized wealthy corporations; consider issues of private property rights, eminent domain and devaluation of neighboring properties; and develop stipulations for long-term regulatory oversight.

Comment 285

Comment 286

DEQ should guarantee full public participation in siting decisions for locating all future wind farms and transmission lines. What effect will the transmission line and hundreds of 300' tall wind turbines have on the viewsheds of the Rocky Mountain Front, the Sweetgrass Hills and Glacier National Park? What about other special areas like the Lewis & Clark fight site, Camp Disappointment, the Baker Massacre site? The wide-open prairies of the Great Plains have in many places changed very little from two centuries ago when the early explorers first saw them. They are an essential part of our heritage as Americans, and need to be protected.

Comment 287

In particular, it is essential that industrial-scale wind farms and transmission lines be kept near Interstate Hwy 15, well east of the Rocky Mountain Front, to protect the viewshed of some of the most spectacular undeveloped scenery in North America -- landscape which so many state and federal agencies are now working overtime to protect.

Comment 288

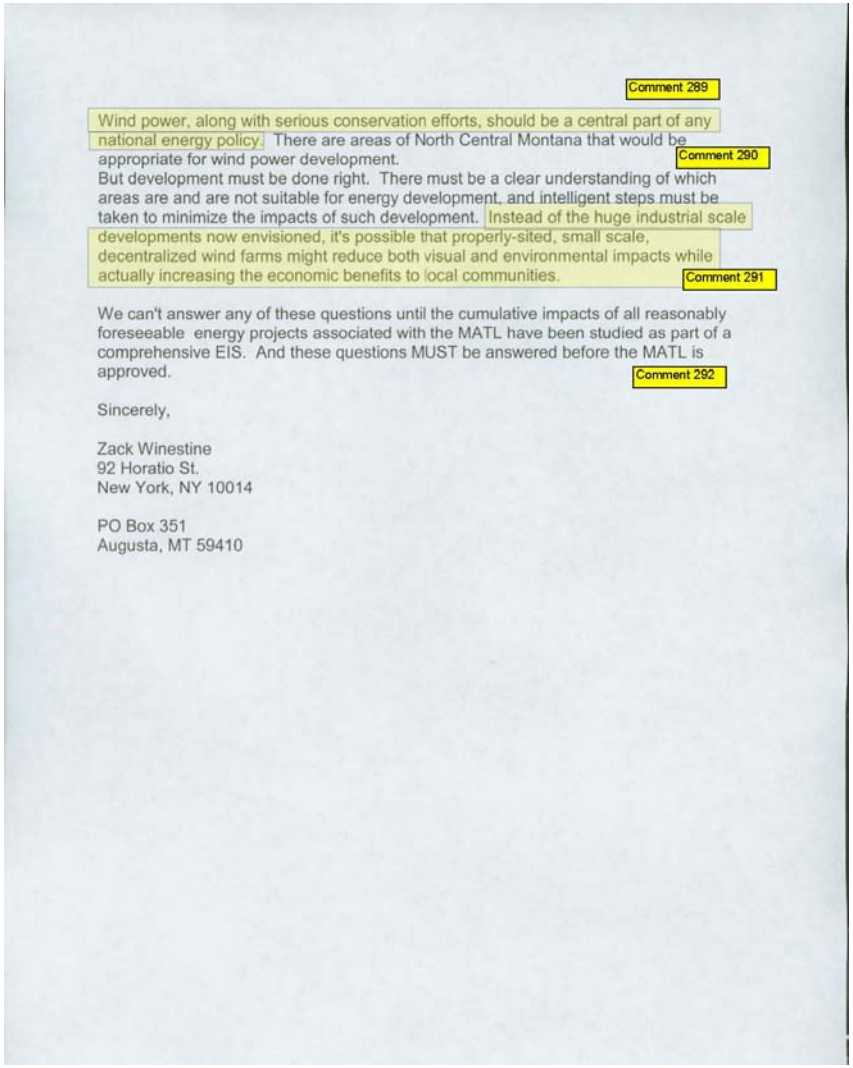
Response 283: The agencies agree that the availability of the MATL line could spur wind farm development in the northern part of the study area, as described in the revised discussion of cumulative impacts. The agencies do not know of any oil and gas well development in the area that would be spurred by approval of the MATL line. Coal development that has been discussed in Montana is not directly dependent on the MATL line because the firm capacity of the line has not been contracted for by a coal-fired generator as indicated in Table 4.1-2. However the agencies acknowledge that power generated from existing or new sources could be transmitted over the line on a short-term basis. Also see response to comment 216. See the revised discussion of cumulative impacts in Chapter 4.

Response 284: Comment noted.

Response 285: See response to comment 283 and also 24. No programmatic review is required for the MATL line.

Response 286: DOE and DEQ do not have the authority to guarantee public participation in wind farm siting because they have no regulatory authority over wind farm siting. See response to comment 23.

Response 287: DOE and DEQ do not have regulatory authority over siting of wind farms. See the revised discussion of cumulative impacts in Section 4.16 for more description of potential visual impacts associated with wind farm development.



Comment 289

Wind power, along with serious conservation efforts, should be a central part of any national energy policy. There are areas of North Central Montana that would be appropriate for wind power development. Comment 290

But development must be done right. There must be a clear understanding of which areas are and are not suitable for energy development, and intelligent steps must be taken to minimize the impacts of such development. Instead of the huge industrial scale developments now envisioned, it's possible that properly-sited, small scale, decentralized wind farms might reduce both visual and environmental impacts while actually increasing the economic benefits to local communities. Comment 291

We can't answer any of these questions until the cumulative impacts of all reasonably foreseeable energy projects associated with the MATL have been studied as part of a comprehensive EIS. And these questions MUST be answered before the MATL is approved. Comment 292

Sincerely,

Zack Winestine
92 Horatio St.
New York, NY 10014

PO Box 351
Augusta, MT 59410

Response 288: Comment noted. Part of the transmission line must be located on the west side of the interstate to cross the border and join the rest of the line in Canada. See the revised discussion of cumulative impacts in Chapter 4 for more information on potential wind farm developments.

Response 289: Comment noted.

Response 290: Comment noted. See the revised discussion of cumulative impacts in Chapter 4 for more information on potential wind farm developments and potential measures to reduce impacts associated with their development.

Response 291: Comment noted. It is also possible that such smaller scale development of wind farms would result in a proliferation of small turbines scattered across the landscape rather than concentrating the development in a handful of commercial wind farms. See response to comment 522.

Response 292: Comment noted. Under the Montana Environmental Policy Act, 'cumulative impacts' means "the collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type" (75-1-220(3), MCA). Further, "related future actions may only be considered when these actions are under concurrent consideration by any agency through preimpact statement studies, separate impact statement evaluations, or permit processing procedures" (75-1-208(11), MCA). Beyond these requirements of law, DEQ cannot speculate on potential future energy development. Federal requirements under the National Environmental Policy Act are discussed in Chapter 4

Greg Hallsten, MEPA Coordinator
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

RECEIVED
APR 27 2007
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DIRECTOR'S OFFICE

Re: MATL Comments, Questions and Concerns

Dear Mr. Hallsten,

I have been privileged to be a citizen of Montana for nearly thirty-two years. I've also been a property owner in Glacier County for many years and have a home in Missoula. In view of the importance of the decision whether to grant a permit to build the Montana-Alberta Tie Ltd. transmission line, commonly referred to as MATL, I would like to share some concerns and to ask for your help with a few questions. If the questions are not perceived as necessarily germane to the issues addressed in Draft Environmental Impact Statement, perhaps you will see the logic in my asking them, as they are placed alongside the probable outcome, if the requested permit is granted.

Comment 293

I would like to begin by saying there are two issues that share central prominence for me, regarding MATL.[a] The first is the apparent purpose and the probable residual effect of this transmission line; that is, to help facilitate the development of industrial wind complexes called wind farms, and their potential visual impact upon the areas where they will be built.[b] The second of these issues is the presumed financial benefit of the line, with the probable development of these large complexes or wind farms along the Rocky Mountain Front.

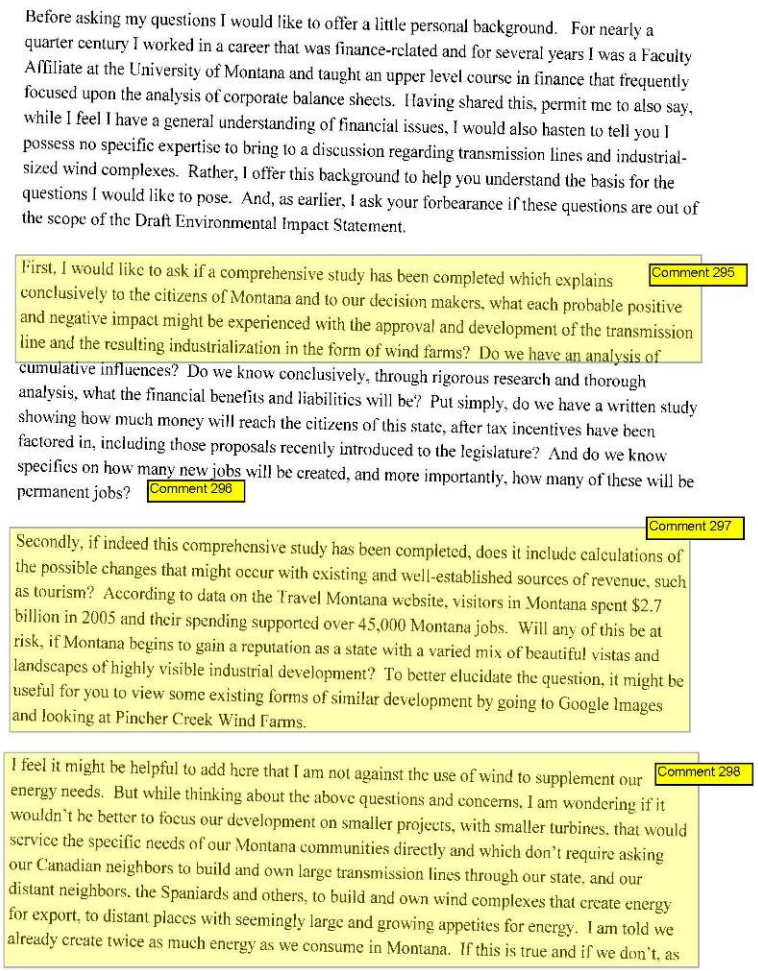
My preference would be to focus solely on the first concern and persuade you with my thoughts and words about the importance of the grandeur in the unencumbered sweep and glide of the prairies, as they lead subtly up to the great massing of rock and snow we all revere as a part of our home here in Montana, the beautiful mountains of Glacier Park and the vast mountain faces that carry southward. They - the open prairies and the mountains - would tend to be less, one without the other. It is part of why my family has lived in Montana for all these years and, perhaps, why you have, as well.

Comment 294

But, because I know, for many Montanans, of necessity, economics is at least of parallel importance when placed beside Montana's beauty, I would like to focus on this second concern, as it relates to the proposed developments.

Response 293: See the revised discussion of cumulative impacts in Sections 4.14 and 4.16 for more information on visual and socioeconomic impacts of wind farms.

Response 294: Comment noted.



Before asking my questions I would like to offer a little personal background. For nearly a quarter century I worked in a career that was finance-related and for several years I was a Faculty Affiliate at the University of Montana and taught an upper level course in finance that frequently focused upon the analysis of corporate balance sheets. Having shared this, permit me to also say, while I feel I have a general understanding of financial issues, I would also hasten to tell you I possess no specific expertise to bring to a discussion regarding transmission lines and industrial-sized wind complexes. Rather, I offer this background to help you understand the basis for the questions I would like to pose. And, as earlier, I ask your forbearance if these questions are out of the scope of the Draft Environmental Impact Statement.

Comment 295

First, I would like to ask if a comprehensive study has been completed which explains conclusively to the citizens of Montana and to our decision makers, what each probable positive and negative impact might be experienced with the approval and development of the transmission line and the resulting industrialization in the form of wind farms? Do we have an analysis of cumulative influences? Do we know conclusively, through rigorous research and thorough analysis, what the financial benefits and liabilities will be? Put simply, do we have a written study showing how much money will reach the citizens of this state, after tax incentives have been factored in, including those proposals recently introduced to the legislature? And do we know specifics on how many new jobs will be created, and more importantly, how many of these will be permanent jobs?

Comment 296

Comment 297

Secondly, if indeed this comprehensive study has been completed, does it include calculations of the possible changes that might occur with existing and well-established sources of revenue, such as tourism? According to data on the Travel Montana website, visitors in Montana spent $2.7 billion in 2005 and their spending supported over 45,000 Montana jobs. Will any of this be at risk, if Montana begins to gain a reputation as a state with a varied mix of beautiful vistas and landscapes of highly visible industrial development? To better elucidate the question, it might be useful for you to view some existing forms of similar development by going to Google Images and looking at Pincher Creek Wind Farms.

Comment 298

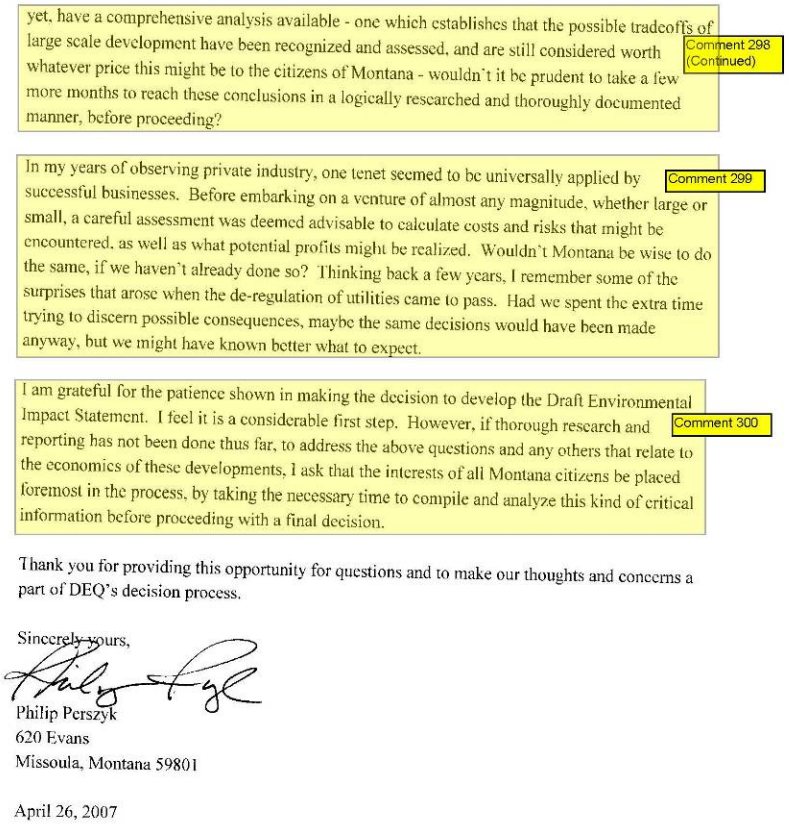
I feel it might be helpful to add here that I am not against the use of wind to supplement our energy needs. But while thinking about the above questions and concerns, I am wondering if it wouldn't be better to focus our development on smaller projects, with smaller turbines, that would service the specific needs of our Montana communities directly and which don't require asking our Canadian neighbors to build and own large transmission lines through our state, and our distant neighbors, the Spaniards and others, to build and own wind complexes that create energy for export, to distant places with seemingly large and growing appetites for energy. I am told we already create twice as much energy as we consume in Montana. If this is true and if we don't, as

Response 295: Comment noted. The draft EIS presents the potential impacts of construction of the transmission line. The potential cumulative impacts of wind farms that might be connected to the transmission line in the future are further discussed in Chapter 4, as far as available information allows.

Response 296: The benefits and costs of MATL to Montana are discussed in Section 1.2 and Section 3.13. Potential impacts to Montana customers are discussed in Section 3.13. See the revised cumulative impacts Section 4.14 for a discussion of the effects from wind farms on the local economy.

Response 297: See response to comment 296. Both the transmission line and wind turbines would introduce linear elements into viewed landscapes. It is unlikely these structures would conceal or hide surrounding mountain ranges. Whether this constitutes industrial development that degrades scenic vistas is a value judgment.

Response 298: Such a comprehensive study would be outside of DEQ's purview because of the agency's limited regulatory authority. The Montana legislature could, by resolution, order its Environmental Quality Council to perform a study of this type.



yet, have a comprehensive analysis available - one which establishes that the possible tradeoffs of large scale development have been recognized and assessed, and are still considered worth whatever price this might be to the citizens of Montana - wouldn't it be prudent to take a few more months to reach these conclusions in a logically researched and thoroughly documented manner, before proceeding?

Comment 298 (Continued)

In my years of observing private industry, one tenet seemed to be universally applied by successful businesses. Before embarking on a venture of almost any magnitude, whether large or small, a careful assessment was deemed advisable to calculate costs and risks that might be encountered, as well as what potential profits might be realized. Wouldn't Montana be wise to do the same, if we haven't already done so? Thinking back a few years, I remember some of the surprises that arose when the de-regulation of utilities came to pass. Had we spent the extra time trying to discern possible consequences, maybe the same decisions would have been made anyway, but we might have known better what to expect.

Comment 299

I am grateful for the patience shown in making the decision to develop the Draft Environmental Impact Statement. I feel it is a considerable first step. However, if thorough research and reporting has not been done thus far, to address the above questions and any others that relate to the economics of these developments, I ask that the interests of all Montana citizens be placed foremost in the process, by taking the necessary time to compile and analyze this kind of critical information before proceeding with a final decision.

Comment 300

Thank you for providing this opportunity for questions and to make our thoughts and concerns a part of DEQ's decision process.

Sincerely yours,

Philip Perszyk
620 Evans
Missoula, Montana 59801

April 26, 2007

Response 299: Costs and risks of the MATL project to Montana are discussed in the draft EIS. The benefits and costs of MATL to Montana are discussed in Sections 1.2 and 3.13. Potential impacts to Montana customers are discussed in Section 3.13.

Response 300: Comment noted.

Shawn and Lori Dolan
12418 N. Diamond Drive
Hayden, ID 83835
(208) 762-4061

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April 24, 2007

Mr. Gary Hallsten
Director's Office
Montana Department of
Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Re: Montana-Alberta Tie Ltd Environmental Impact Statement

Our family owns 400 acres of irrigated farm land near Valier Montana and is impacted by the proposed MATL 230 kV transmission line. We have read through the draft EIS statement for the line and offer the following comments.

The economic impact stated in the draft EIS significantly overstates the positive economic benefits of the transmission line, while it under estimates the negative economic impacts the line will have. We understand that Montana-Alberta Tie Ltd, has been spreading a lot of misinformation to local politicians and has to some extent has convinced some of them that this transmission line would be a large economic benefit. We have read statements alluding, that the transmission line would create 2,000 local jobs and would pump millions of dollars into the local economy. If only this were the case.

Comment 301

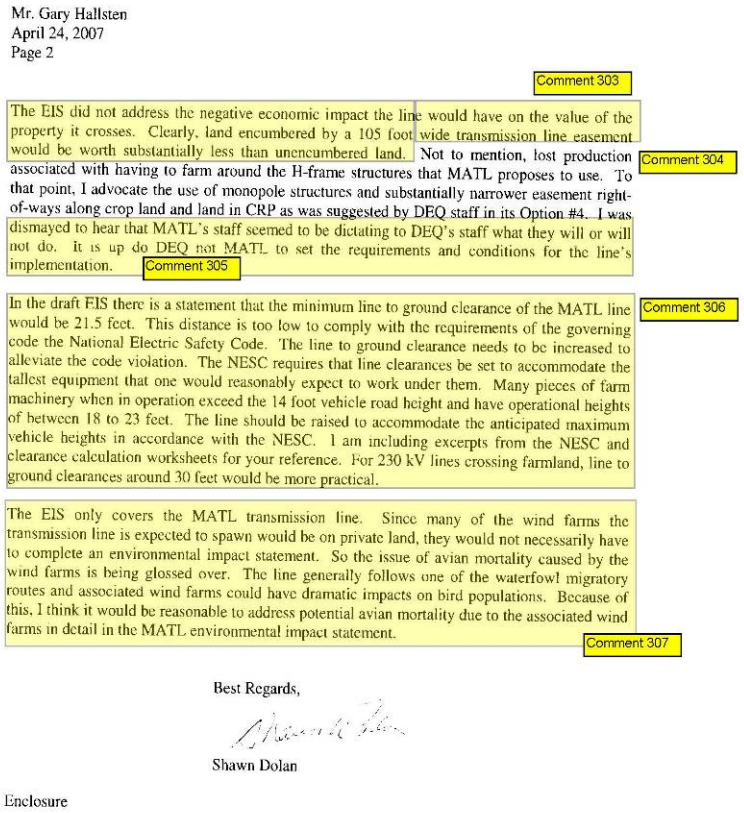
I am a professional engineer and have worked in the power industry for 20 years, both as a consultant and as a utility staff engineer. Over my career I have been involved in the construction of numerous transmission lines. Transmission lines are built by specialized electric line contractors using crews of journeyman lineman from outside the area, very little if any of the local population will benefit. Only motel, bars and service station operators will benefit during the six month construction period. Other than gravel and concrete, local merchants won't be providing materials to Montana-Alberta Tie Ltd. Because of the specialized nature of the materials used to construct the line, materials will be purchased outside the state and dropped shipped to the construction site. Unless the local population can cram a nine month lineman training school and a four year apprenticeship into a couple months, they won't be getting a job building the transmission line. Nor are their prospects of getting a job with the wind farms the transmission line will spawn very good as most of the wind farms are operated by remote control and maintenance crews will be technical specialists as well.

The majority of the positive economic impact of the transmission line would be the potential for increased tax revenues to the state. However, we understand that Governor Schweitzer is trying to give Montana-Alberta Tie, Ltd a massive tax break. Now given the fact that the transmission line would not generate any local jobs and the State is willing to give them a massive tax break, this reduces the positive economic impact dramatically and should be addressed in the EIS.

Comment 302

Response 301: The agencies agree that 2,000 jobs will not be created as a result of the proposed action. The beneficial impacts from this project are described as "small and short term" to the local area in Section 3.13.3.2. The income, job and secondary benefits were estimated with the best information available, and it is understood that many of these jobs will go to out-of-state residents. Also, some benefits would be felt outside the study area by customers of the line. See Section 3.13 and the revised cumulative impacts Section 4.14 for a discussion of the effects from wind farms on the local economy.

Response 302: See revised Section 3.13 for estimates on property tax savings to MATL as a result of the lower tax rate recently passed by the 2007 Montana Legislature.



Mr. Gary Hallsten
April 24, 2007
Page 2

Comment 303

The EIS did not address the negative economic impact the line would have on the value of the property it crosses. Clearly, land encumbered by a 105 foot wide transmission line easement would be worth substantially less than unencumbered land. Not to mention, lost production Comment 304 associated with having to farm around the H-frame structures that MATL proposes to use. To that point, I advocate the use of monopole structures and substantially narrower easement right-of-ways along crop land and land in CRP as was suggested by DEQ staff in its Option #4. I was dismayed to hear that MATL's staff seemed to be dictating to DEQ's staff what they will or will not do. It is up do DEQ not MATL to set the requirements and conditions for the line's implementation. Comment 305

In the draft EIS there is a statement that the minimum line to ground clearance of the MATL line Comment 306 would be 21.5 feet. This distance is too low to comply with the requirements of the governing code the National Electric Safety Code. The line to ground clearance needs to be increased to alleviate the code violation. The NESC requires that line clearances be set to accommodate the tallest equipment that one would reasonably expect to work under them. Many pieces of farm machinery when in operation exceed the 14 foot vehicle road height and have operational heights of between 18 to 23 feet. The line should be raised to accommodate the anticipated maximum vehicle heights in accordance with the NESC. I am including excerpts from the NESC and clearance calculation worksheets for your reference. For 230 kV lines crossing farmland, line to ground clearances around 30 feet would be more practical.

The EIS only covers the MATL transmission line. Since many of the wind farms the transmission line is expected to spawn would be on private land, they would not necessarily have to complete an environmental impact statement. So the issue of avian mortality caused by the wind farms is being glossed over. The line generally follows one of the waterfowl migratory routes and associated wind farms could have dramatic impacts on bird populations. Because of this, I think it would be reasonable to address potential avian mortality due to the associated wind farms in detail in the MATL environmental impact statement. Comment 307

Best Regards,

Shawn Dolan

Enclosure

Response 303: See the revised discussion on land values in Section 3.13. Agricultural lands that have transmission lines traversing them do have a potential to have lower real estate values. A case study found that real estates values varied widely depending upon the amount of disruption the line had on agricultural operations (Kroll and Priestly 1992). To the extent that MATL would lower land values, these would be costs to landowners.

Response 304: The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 305: Comment noted. The decision to approve the line, to approve the line with conditions, or to deny the certificate for the line lies with the agencies.

Response 306: See response to comment 10.

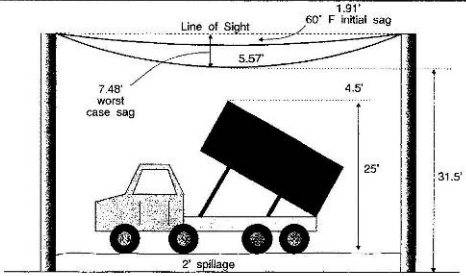
Response 307: See response to comment 20, and the revised discussion of cumulative impacts in Chapter 4.

Segment 6: Clearance Development Answers

Comment 306 (Continued)

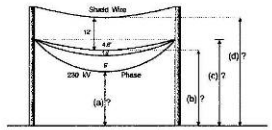
There are two ways to consider this problem:

METHOD 1		METHOD 2	
25.0'	Truck Height	18.5'	Normal Road Clearance
-14.0'	Included in Code Clearance (See Appendix A, Table A2)	-14.0'	Reference Height for a Truck
11.0'	Needed Extra Above Table Value	4.5'	Over the Reference Height
+2.0'	Planned Road Elevation Change	+25.0'	Actual Truck Height (See Appendix A, Table A1)
13.0'	Total Extra Needed @ Worst Case Condition	+2.0'	Planned Road Elevation Change
+18.5'	Table Value		
=31.5'	Total Needed @ Worst Case Condition	=31.5'	

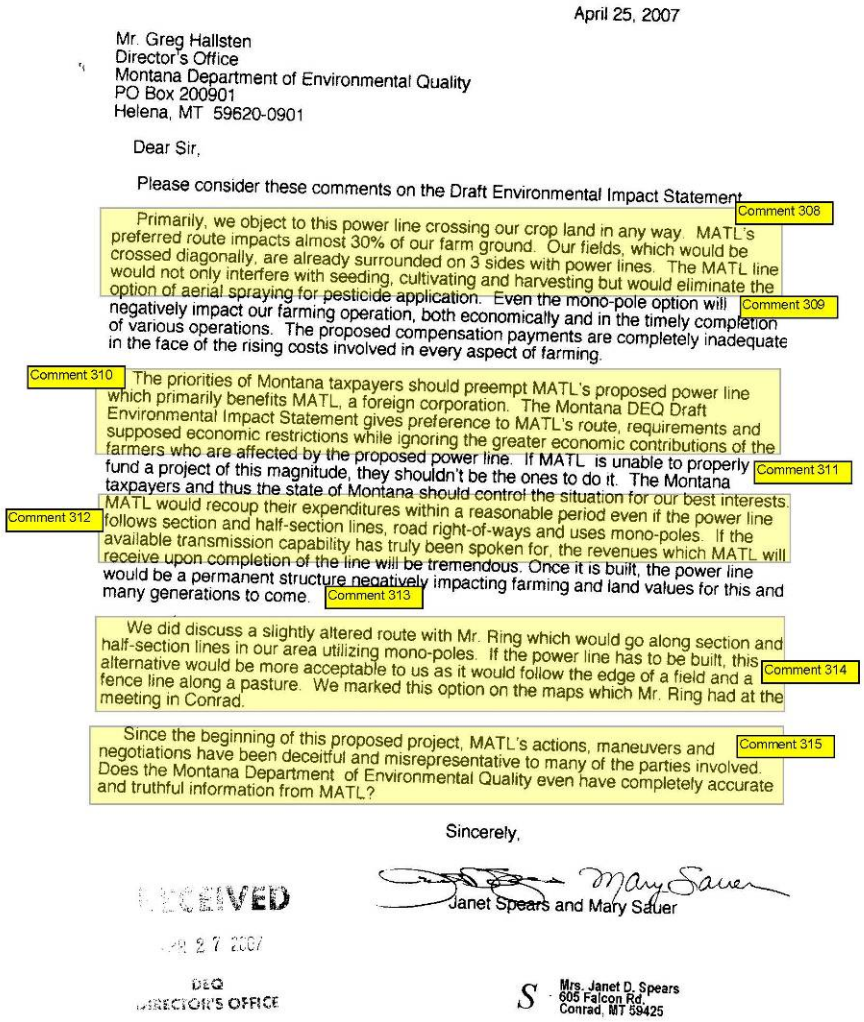


METHOD A		METHOD B	
Worst case total final sag @ 32 degrees F with 1/2" radial ice	7.48'	Worst case total final sag @ 32 degrees F with 1/2" radial ice	7.48'
Less Initial Sag @ 60 degrees F	-1.91'	Plus required "not-less-than" clearance	+ 31.50'
= Sag change from 60 degrees F initial to 32 degrees F final with ice	=5.57'	= Required Line-of-Sight (LOS) between conductor attachment points	=38.98'
Plus required "not-less-than" clearance	+ 31.50'	Less Initial Sag @ 60 degrees F	-1.91'
= Required clearance at 60 degrees F initial sag	=37.07'	= Required clearance at 60 degrees F initial sag	=37.07'

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7. Ruff Woods is a forest along Highway 1. **What vertical clearance is required** for a phase conductor of a 19.9/34.5kV effectively grounded wye line running along the highway and: a. within the highway R/W? b. on private R/W?	Comment 306 (Continued) **18.5'-Category 9—See Table 232-1, Column 4** **18.5'-Category 4**
8. **What clearance above a roadway is required** for a span of 230kV conductors?	**[230kV/1.732=132.79] = *nominal* phase-to-neutral voltage.** **[132.79 x 1.05=139.4kV] = *maximum operating* voltage.** **[139.4-22=117.4kV] = kV above 22kV-to-ground** **[117kV x 0.4"/kV=46.96"] = 4' voltage adder** **18.5' + 4' = 22.5'.**
9. Now assume that a 230kV line in the Light Loading District has a maximum design temperature of 156 deg F. We know that the conductor will change in sag with time and with temperature. Assume that the sag change from initial unloaded sag of 4.6 feet at 60 deg F down to final unloaded sag at 60 deg F is 1.5 feet. When the conductor temperature increases to 156 deg F, the conductor sags a further 6 feet lower, i.e., the sag at 156 deg F is 4.6 + 1.5 + 6 = 12.1 feet.	**a. The basic clearance at closest approach is 18.5 feet. To this must be added the voltage adder of 4 feet (as calculated in Answer 8). This gives us 22.5' as the lowest conductor position allowed above the road under any circumstances.**
	
a. What is the least clearance allowed above the road during maximum sag conditions?	
b. If you originally install the conductor at 60 degrees F initial sag, **how high above the roadway must it be** to meet the vertical clearance requirements?	**b. Add the difference between worst case sag and initial stringing sag (7.5') to the required clearance (22.5') to get the required height above the road at initial installation of 30 feet.**
c. How high is the line of sight between the 230 kV conductor attachments above the road? Now assume that our 230kV conductor is initially installed 12 feet below the level of an overhead shield (static) surge protection wire.	**c. Add the initial sag of 4.6 feet to get the height of the LOS above the roadway of 34.6 feet.**
d. **What is the height of that shield wire above the roadway** at initial installation?	**d. 30' + 12' = 42'**

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April 25, 2007

Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Dear Sir,

Please consider these comments on the Draft Environmental Impact Statement.

Comment 308

Primarily, we object to this power line crossing our crop land in any way. MATL's preferred route impacts almost 30% of our farm ground. Our fields, which would be crossed diagonally, are already surrounded on 3 sides with power lines. The MATL line would not only interfere with seeding, cultivating and harvesting but would eliminate the option of aerial spraying for pesticide application. Even the mono-pole option will negatively impact our farming operation, both economically and in the timely completion of various operations. The proposed compensation payments are completely inadequate in the face of the rising costs involved in every aspect of farming.

Comment 309

Comment 310

The priorities of Montana taxpayers should preempt MATL's proposed power line which primarily benefits MATL, a foreign corporation. The Montana DEQ Draft Environmental Impact Statement gives preference to MATL's route, requirements and supposed economic restrictions while ignoring the greater economic contributions of the farmers who are affected by the proposed power line. If MATL is unable to properly fund a project of this magnitude, they shouldn't be the ones to do it. The Montana taxpayers and thus the state of Montana should control the situation for our best interests.

Comment 311

Comment 312

MATL would recoup their expenditures within a reasonable period even if the power line follows section and half-section lines, road right-of-ways and uses mono-poles. If the available transmission capability has truly been spoken for, the revenues which MATL will receive upon completion of the line will be tremendous. Once it is built, the power line would be a permanent structure negatively impacting farming and land values for this and many generations to come.

Comment 313

We did discuss a slightly altered route with Mr. Ring which would go along section and half-section lines in our area utilizing mono-poles. If the power line has to be built, this alternative would be more acceptable to us as it would follow the edge of a field and a fence line along a pasture. We marked this option on the maps which Mr. Ring had at the meeting in Conrad.

Comment 314

Since the beginning of this proposed project, MATL's actions, maneuvers and negotiations have been deceitful and misrepresentative to many of the parties involved. Does the Montana Department of Environmental Quality even have completely accurate and truthful information from MATL?

Comment 315

Sincerely,

Janet Spears and Mary Sauer

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DIRECTOR'S OFFICE

Mrs. Janet D. Spears
605 Falcon Rd.
Conrad, MT 59425

Response 308: An alternative location for the line in the area southwest of Conrad is described in Section 2.6.

Response 309: Further information pertaining to the increased cost of farming around the line is presented in Section 3.13.

Response 310: Comment noted. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

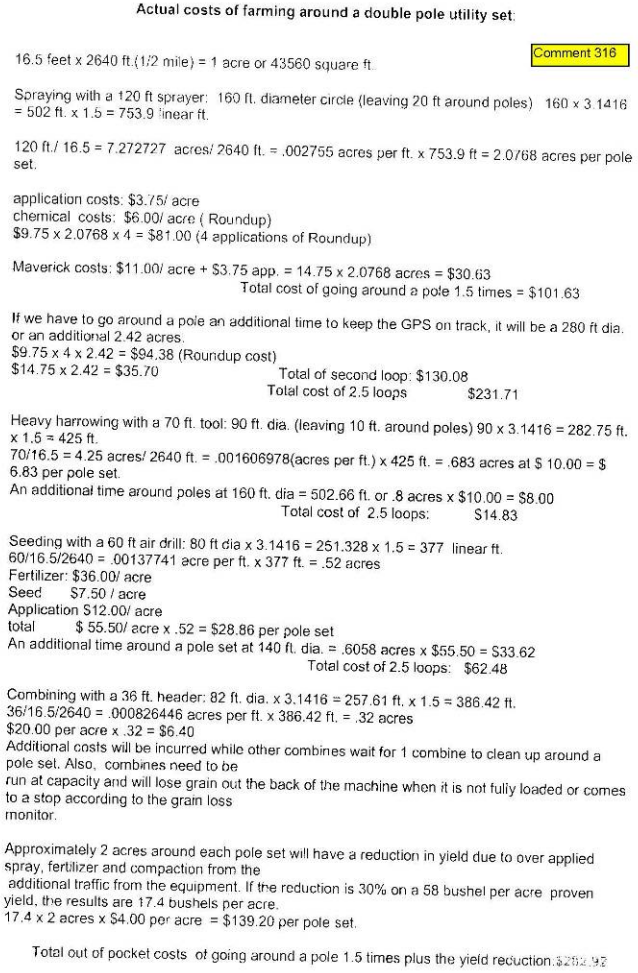
Response 311: Comment noted.

Response 312: Comment noted.

Response 313: Comment noted. See Section 3.13 for further information pertaining to the increased cost of farming around the line and the response to comment 303 regarding land values.

Response 314: Comment noted. See Section 2.6 for further discussion of an alternative location for the line in the area southwest of Conrad.

Response 315: Thank you for your comment. The agencies attempt to verify the information provided by an applicant as far as possible.



Actual costs of farming around a double pole utility set:

Comment 316

16.5 feet x 2640 ft.(1/2 mile) = 1 acre or 43560 square ft.

Spraying with a 120 ft sprayer: 160 ft. diameter circle (leaving 20 ft around poles) 160 x 3.1416 = 502 ft. x 1.5 = 753.9 linear ft.

120 ft./ 16.5 = 7.272727 acres/ 2640 ft. = .002755 acres per ft. x 753.9 ft = 2.0768 acres per pole set.

application costs: $3.75/ acre
chemical costs: $6.00/ acre (Roundup)
$9.75 x 2.0768 x 4 = $81.00 (4 applications of Roundup)

Maverick costs: $11.00/ acre + $3.75 app. = 14.75 x 2.0768 acres = $30.63
Total cost of going around a pole 1.5 times = $101.63

If we have to go around a pole an additional time to keep the GPS on track, it will be a 280 ft dia. or an additional 2.42 acres.
$9.75 x 4 x 2.42 = $94.38 (Roundup cost)
$14.75 x 2.42 = $35.70
Total of second loop: $130.08
Total cost of 2.5 loops $231.71

Heavy harrowing with a 70 ft. tool: 90 ft. dia. (leaving 10 ft. around poles) 90 x 3.1416 = 282.75 ft. x 1.5 = 425 ft.
70/16.5 = 4.25 acres/ 2640 ft. = .001606978(acres per ft.) x 425 ft. = .683 acres at $ 10.00 = $ 6.83 per pole set.
An additional time around poles at 160 ft. dia = 502.66 ft. or .8 acres x $10.00 = $8.00
Total cost of 2.5 loops: $14.83

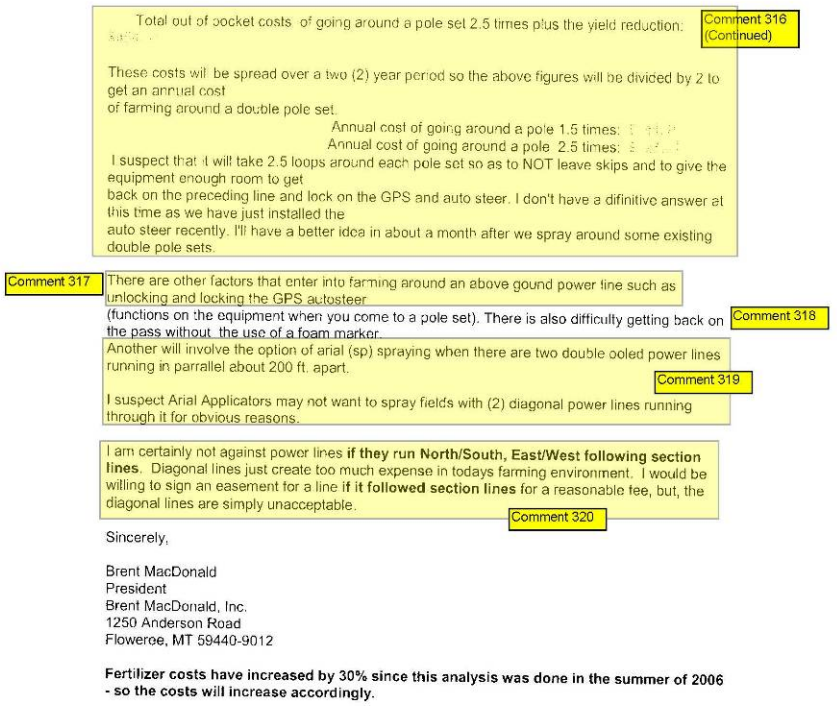
Seeding with a 60 ft air drill: 80 ft dia x 3.1416 = 251.328 x 1.5 = 377 linear ft.
60/16.5/2640 = .00137741 acre per ft. x 377 ft. = .52 acres
Fertilizer: $36.00/ acre
Seed $7.50 / acre
Application $12.00/ acre
total $ 55.50/ acre x .52 = $28.86 per pole set
An additional time around a pole set at 140 ft. dia. = .6058 acres x $55.50 = $33.62
Total cost of 2.5 loops: $62.48

Combining with a 36 ft. header: 82 ft. dia. x 3.1416 = 257.61 ft. x 1.5 = 386.42 ft.
36/16.5/2640 = .000826446 acres per ft. x 386.42 ft. = .32 acres
$20.00 per acre x .32 = $6.40
Additional costs will be incurred while other combines wait for 1 combine to clean up around a pole set. Also, combines need to be
run at capacity and will lose grain out the back of the machine when it is not fully loaded or comes to a stop according to the grain loss
monitor.

Approximately 2 acres around each pole set will have a reduction in yield due to over applied spray, fertilizer and compaction from the
additional traffic from the equipment. If the reduction is 30% on a 58 bushel per acre proven yield, the results are 17.4 bushels per acre.
17.4 x 2 acres x $4.00 per acre = $139.20 per pole set.

Total out of pocket costs of going around a pole 1.5 times plus the yield reduction $[illegible]

Response 316: Thank you for your comment. The information provided was considered as the costs of the line to farmers were refined. See Section 3.13 for additional discussion.



Total out of pocket costs of going around a pole set 2.5 times plus the yield reduction: Comment 316 (Continued)

These costs will be spread over a two (2) year period so the above figures will be divided by 2 to get an annual cost
of farming around a double pole set.

Annual cost of going around a pole 1.5 times:
Annual cost of going around a pole 2.5 times:

I suspect that it will take 2.5 loops around each pole set so as to NOT leave skips and to give the equipment enough room to get
back on the preceding line and lock on the GPS and auto steer. I don't have a difinitive answer at this time as we have just installed the
auto steer recently. I'll have a better idea in about a month after we spray around some existing double pole sets.

Comment 317 There are other factors that enter into farming around an above gound power line such as unlocking and locking the GPS autosteer
(functions on the equipment when you come to a pole set). There is also difficulty getting back on Comment 318
the pass without the use of a foam marker.

Another will involve the option of arial (sp) spraying when there are two double poled power lines running in parrallel about 200 ft. apart.
Comment 319

I suspect Arial Applicators may not want to spray fields with (2) diagonal power lines running through it for obvious reasons.

I am certainly not against power lines **if they run North/South, East/West following section lines**. Diagonal lines just create too much expense in todays farming environment. I would be willing to sign an easement for a line **if it followed section lines** for a reasonable fee, but, the diagonal lines are simply unacceptable.
Comment 320

Sincerely,

Brent MacDonald
President
Brent MacDonald, Inc.
1250 Anderson Road
Floweroe, MT 59440-9012

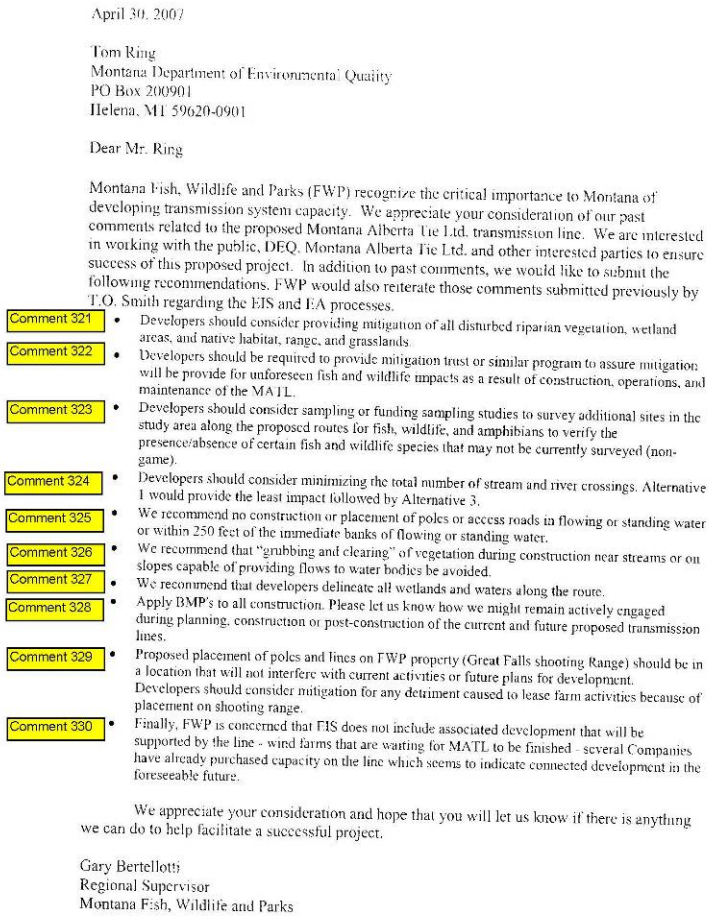
Fertilizer costs have increased by 30% since this analysis was done in the summer of 2006 - so the costs will increase accordingly.

Response 317: Comment noted. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information. See the revised discussion of potential effects to GPS equipment in Section 3.4 and response to comment 599.

Response 318: Comment noted. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 319: See the expanded discussion of effects to aerial spraying in Section 3.1.3.2.

Response 320: Comment noted.



April 30, 2007

Tom Ring
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Dear Mr. Ring

Montana Fish, Wildlife and Parks (FWP) recognize the critical importance to Montana of developing transmission system capacity. We appreciate your consideration of our past comments related to the proposed Montana Alberta Tie Ltd. transmission line. We are interested in working with the public, DEQ, Montana Alberta Tie Ltd. and other interested parties to ensure success of this proposed project. In addition to past comments, we would like to submit the following recommendations. FWP would also reiterate those comments submitted previously by T.O. Smith regarding the EIS and EA processes.

Comment 321 • Developers should consider providing mitigation of all disturbed riparian vegetation, wetland areas, and native habitat, range, and grasslands.

Comment 322 • Developers should be required to provide mitigation trust or similar program to assure mitigation will be provide for unforeseen fish and wildlife impacts as a result of construction, operations, and maintenance of the MATL.

Comment 323 • Developers should consider sampling or funding sampling studies to survey additional sites in the study area along the proposed routes for fish, wildlife, and amphibians to verify the presence/absence of certain fish and wildlife species that may not be currently surveyed (non-game).

Comment 324 • Developers should consider minimizing the total number of stream and river crossings. Alternative 1 would provide the least impact followed by Alternative 3.

Comment 325 • We recommend no construction or placement of poles or access roads in flowing or standing water or within 250 feet of the immediate banks of flowing or standing water.

Comment 326 • We recommend that "grubbing and clearing" of vegetation during construction near streams or on slopes capable of providing flows to water bodies be avoided.

Comment 327 • We recommend that developers delineate all wetlands and waters along the route.

Comment 328 • Apply BMP's to all construction. Please let us know how we might remain actively engaged during planning, construction or post-construction of the current and future proposed transmission lines.

Comment 329 • Proposed placement of poles and lines on FWP property (Great Falls shooting Range) should be in a location that will not interfere with current activities or future plans for development. Developers should consider mitigation for any detriment caused to lease farm activities because of placement on shooting range.

Comment 330 • Finally, FWP is concerned that EIS does not include associated development that will be supported by the line - wind farms that are waiting for MATL to be finished - several Companies have already purchased capacity on the line which seems to indicate connected development in the foreseeable future.

We appreciate your consideration and hope that you will let us know if there is anything we can do to help facilitate a successful project.

Gary Bertellotti
Regional Supervisor
Montana Fish, Wildlife and Parks

Response 321: Comment noted. MATL proposes to reclaim disturbed areas and the agencies require these areas to be reclaimed.

Response 322: Under the Major Facility Siting Act DEQ can require mitigation of significant impacts at the time of certification. However, as a matter of policy DEQ does not require mitigation (including compensation) of speculative impacts that cannot be reasonably predicted prior to a certification decision. With previous certified projects, if additional studies were needed to quantify a potential impact after a facility was constructed, such study was required in the certificate and the degree of mitigation was determined after these studies were completed.

Response 323: If an alignment is selected that has not been surveyed for wildlife and there is a potential for adverse impact if wildlife were present, then the agencies would require surveys of these areas and if sensitive species are found, timing restrictions or other types of mitigation would be required as conditions to the certificate. For example, if Alternative 4 were selected, there is a potential for sharp-tailed grouse leks to be found along Dry Fork Coulee which contains pasture and range vegetation. The area would be surveyed for grouse leks by either DEQ or MATL and if they are found, construction would not be allowed in an area until after the breeding season. In addition perch preventers would be installed on transmission line structures near grouse leks to prevent raptors from using the line as hunting perches. Cropland would not be surveyed for sensitive wildlife species.

Response 324: Comment noted. The number of potential stream crossings differs between alternatives and final line location and design are likely to reduce the number of crossings along each alternative. The number of potential stream crossings, those within 250 feet of a reference transmission line centerline, is indicated in Section 3.5. The actual number of crossings is expected to be lower.

Response 325: Comment noted. Depending on local conditions, it may be more desirable to locate a structure closer than 250 feet to a stream to avoid impacts to the riparian zone. For example, it may be advisable to locate a structure close to one side of a stream on a high terrace without riparian vegetation to facilitate a span of the riparian zone. Limiting structure location to more than 250 feet from a stream may result in more clearing of riparian vegetation because of the sag of the line.

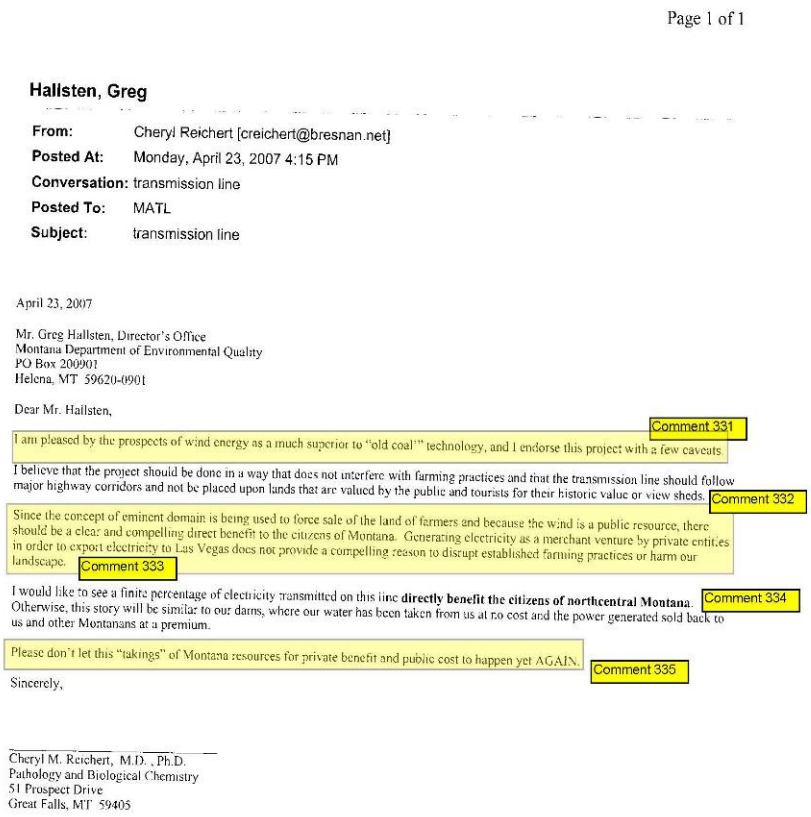
Response 326: Comment noted. DEQ requires that shrubs be crushed rather than cleared and that where clearing is necessary, that tall shrubs be cut off at ground level rather than removed by the roots. Further soil disturbance and earth moving must be kept to a minimum.

Response 327: Comment noted.

Response 328: See Appendix F.

Response 329: Comment noted.

Response 330: See response to comment 20 and the revised discussion of cumulative impacts in Chapter 4.



Page 1 of 1

Hallsten, Greg

From: Cheryl Reichert [creichert@bresnan.net]
Posted At: Monday, April 23, 2007 4:15 PM
Conversation: transmission line
Posted To: MATL
Subject: transmission line

April 23, 2007

Mr. Greg Hallsten, Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Dear Mr. Hallsten,

I am pleased by the prospects of wind energy as a much superior to "old coal'" technology, and I endorse this project with a few caveats Comment 331

I believe that the project should be done in a way that does not interfere with farming practices and that the transmission line should follow major highway corridors and not be placed upon lands that are valued by the public and tourists for their historic value or view sheds. Comment 332

Since the concept of eminent domain is being used to force sale of the land of farmers and because the wind is a public resource, there should be a clear and compelling direct benefit to the citizens of Montana. Generating electricity as a merchant venture by private entities in order to export electricity to Las Vegas does not provide a compelling reason to disrupt established farming practices or harm our landscape. Comment 333

I would like to see a finite percentage of electricity transmitted on this line **directly benefit the citizens of northcentral Montana**. Comment 334
Otherwise, this story will be similar to our dams, where our water has been taken from us at no cost and the power generated sold back to us and other Montanans at a premium.

Please don't let this "takings" of Montana resources for private benefit and public cost to happen yet AGAIN. Comment 335

Sincerely,

Cheryl M. Reichert, M.D., Ph.D.
Pathology and Biological Chemistry
51 Prospect Drive
Great Falls, MT 59405

4/24/2007

Response 331: Comment noted.

Response 332: Comment noted. Locating a line along a highway corridor would increase visual impacts to the public and tourists traveling the State's highways. Such a line location may also result in greater public exposure to EMF.

Response 333: Comment noted. See response to comment 8.

Response 334: The agencies do not have the authority to reserve transmission capacity for a particular use. Under regulations of the Federal Energy Regulatory Commission, MATL is required to provide open access to generators without special treatment for anyone.

Response 335: Comment noted.

MONTANA ALBERTA TIE LTD

800, 615 Macleod Trail S.E.
Calgary, Alberta, Canada
T2G 4T8

Phone: (403) 264-4465
Fax: (403) 265-1299
Toll Free: 1-877-290-6285
Website: www.matl.ca

April 5, 2007

Greg Hallsten
Director's Office
Montana Department of Environmental Quality
Lee Metcalf Building
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

Subject: Draft EIS corrections

Dear Mr. Hallsten,

Montana Alberta Tie Ltd. (MATL) is writing to provide you with its proposed corrections to the Draft EIS. The corrections are presented in the order that they appear in the document.

If you have any comments or questions, please contact me.

Sincerely,

Robert L Williams

Bob Williams
Vice President, Regulatory

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DEQ
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April 9, 2007

Greg Hallsten
Director's Office
Montana Department of Environmental Quality
Lee Metcalf Building
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

Subject: Replacement of Table 2.3-1 for Draft EIS

Dear Mr. Hallsten,

Montana Alberta Tie Ltd. (MATL) is writing to provide you with an updated Table 2.3-1, (reference page 2-12 of the Draft EIS). Although an updated Table 2.3-1 was submitted in our previous letter of 'Draft EIS Corrections', dated April 5, 2007, please disregard that particular table and instead replace it with the correct Table 2.3-1 attached. We apologize for any inconvenience that this may have caused.

If you have any comments or questions, please contact me.

Sincerely,

Robert L Williams

Bob Williams
Vice President, Regulatory

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APR 13 2007
DEQ
DIRECTOR'S OFFICE

RECEIVED
APR 11 2007
Dept. Environmental Quality
Env. Management Bureau

1. **Reference**: Page 2-12, Table 2.3-1 Comment 336

   Comments: Replace Table 2.3-1 with the updated version below.

TABLE 2.3-1
TYPICAL DESIGN CHARACTERISTICS

Design Element	H-frame Characteristic	Monopole Characteristic
Line Length within Montana (approximate)	130 miles	Same
Right-of-Way Width	45 feet	20 feet
Safety Zone Width	30 feet on each side of Right-of0Way	20 feet on each side of Right-of-Way
Thermal Capacity for 230-kV line	625 MVA @ 212° Fahrenheit	Same
Nominal Voltage	230,000 volts (230-kV)	Same
Conductor Size	1590 kcmil Falcon	Same
Conductor Type	ACSR (aluminum core steel reinforced)	Same
Overhead Shield Wire	3/8-inch diameter galvanized	Incorporated into optical ground wire (OPGW) which has a diameter of no more than 0.433 inches
Electric field at edge of right of way	4.78 kV/m	3.87 kV/m
Electric field at edge of safety zone	1.61 kV/m	1.71 kV/m
Magnetic field at edge of right of way	191.46 mG	127.95 mG
Magnetic field at edge of safety zone	62.75 mG	65.62 mG
Electrostatic short-circuit current limit	5 milliampere (mA)	Same
Structure Height above Ground (approximate)	65 feet average	80 feet average
Length of Span (approximate)	800 feet ruling span	460 feet ruling span,
Minimum Ground Clearance of Conductor	22.97 feet @ 212° Fahrenheit	Same
Typical Structure Base Dimensions	2 poles: 1 feet x 2 feet	1 pole: 1.5 feet x 2 feet
Land temporarily disturbed per site for conductor reel and pole storage yards	10 acres	Same
Area required for each structure base	44 square feet	4 square feet

2. **Reference**: Page 2-12, footnote 'a' below Table 2.3-1. Comment 337

   Comments: Add the following information to footnote 'a,' after the second sentence, regarding long-span monopoles: "Long-span monopoles would require the same right of way width as that for H-frame structures."

Response 336: Thank you for the updated information. Revisions have been incorporated into this document. The agencies agree with the suggested addition.

Response 337: The agencies agree with the suggested change. Revisions have been incorporated into this document.

3. **Reference**: Page 2-17, second bullet. Comment 338

   "Restoration"

   Comments: "Restoration" should be replaced with "Reclamation."

4. **Reference**: Pages 3-48, 3-51, and 3-52 Comment 339

   "21 feet"

   Comments:

5. **Reference**: Page 3-103, third paragraph; Page 3-121, second paragraph. Comment 340

   "Avian collisions would be reduced as approved line marking devices would be installed every 50 feet within a ¼ mile buffer on either side of streams, rivers, or wetlands."

   Comments: Replace the words, "every 50 feet" with "according to manufacturers' recommendations." Please refer to MATL's response to the DEQ's January 4, 2007 information request, bullet #7 for further information.

6. **Reference**: Page 3-104, fourth paragraph. Comment 341

   "Activities would not disturb wintering animals as the construction activities would occur during the spring and summer months. In the event that activities would occur within the winter months, animals could be disturbed and potentially displaced; however, disturbance within a specific area would be temporary."

   Comments: Replace the word "would" in the third sentence with "may". After the fourth sentence, add the following text: "MATL would comply with all Fish and Wildlife recommendations and restrictions to reduce disturbance to big game species".

7. **Reference**: Page 3-191, fifth paragraph. Comment 342

   "Potential impacts to system reliability from the Project and alternatives are under evaluation by the NERC and will be disclosed in a report in early 2007."

   Comments: Replace "NERC" with "WECC."

8. **Reference**: Page 3-193, first bullet. Comment 343

   "Flows greater than 150 MW on the line would require voltage additions at Cut Bank to compensate for line losses, such as those due to heat."

Response 338: The agencies agree with the suggested change. Revisions have been incorporated into this document.

Response 339: Revisions have been incorporated into this document.

Response 340: Appropriate changes have been made in this document.

Response 341: The comment to replace "would" with "may" is unclear, and the change will not be made.

Response 342: Revisions have been incorporated into this document.

Response 343: Revisions have been incorporated into this document.

Comments: This sentence is technically incorrect. It should instead read: "Flows greater than 150 MW on the line would require voltage support equipment at the Marias Substation, to compensate for reactive losses."

Comment 343 (Continued)

TABLE 2.3-1
TYPICAL DESIGN CHARACTERISTICS

Comment 344

Design Element	H-frame Characteristic	Monopole Characteristic
Line Length within Montana (approximate)	130 miles	Same
Right-of-Way Width	45 feet	20 feet
Safety Zone Width	30 feet on each side of Right-ofWay	20 feet on each side of Right-of-Way
Thermal Capacity for 230-kV line	625 MVA @ 212° Fahrenheit	Same
Nominal Voltage	230,000 volts (230-kV)	Same
Conductor Size	1590 kcmil Falcon	Same
Conductor Type	ACSR (aluminum core steel reinforced)	Same
Overhead Sheild Wire	3/8-inch diameter galvanized	Incorporated into optical ground wire (OPGW) which has a diameter of no more than 0.433 inches
Electric field at edge of right of way	4.78 kV/m	3.87 kV/m
Electric field at edge of safety zone	1.61 kV/m	1.71 kV/m
Magnetic field at edge of right of way	191.46 mG	127.95 mG
Magnetic field at edge of safety zone	62.75 mG	65.62 mG
Electrostatic short-circuit current limit	5 milliampere (mA)	Same
Structure Height above Ground (approximate)	65 feet average	80 feet average
Length of Span (approximate)	800 feet ruling span	460 feet ruling span,
Minimum Ground Clearance of Conductor	21.1 feet @ 212° Fahrenheit	Same
Typical Structure Base Dimensions	2 poles: 1 feet x 2 feet	1 pole: 1.5 feet x 2 feet
Land temporarily disturbed per site for conductor reel and pole storage yards	10 acres	Same
Area required for each structure base	44 square feet	4 square feet

Response 344: Appropriate changes are included in Table 2.3-1.

Comments on the *Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. 230 kV Transmission Line*

1. Fiber Optic Comment 345

On page 2-10 of the Draft EIS, the agency states: "No plans have been made to use the excess fiber capacity for commercial purposes."

Six months ago, a document released by Tonbridge Power Inc. (of which MATL is a wholly owned subsidiary) included the following language:[1]

> In addition to transmission line revenues, the Company has begun to explore the commercial value of its fibre-optic capacity. The Company has to build in shield wire on the transmission line for lightening strikes, which wire has thirty six strands of fibre embedded within it. A small portion of the Project's fibre will be required for the operation and control of the line; accordingly substantial amounts of the remaining fibre may be available for resale or rental to others. The capital and operating costs of such a business proposal are being explored, as is the market potential.

If the Company does in fact plan to gain revenue from the sale or rental of fiber optic capacity, would this not aid in the recovery of the extra costs associated with Agency Alternative 4, and make the alternative more economically feasible?

2. Increased Line Capacity Comment 346

On page 2-40 of the Draft EIS, the agency states: "Another related future action is the potential upgrade of the MATL line from 300 MW in each direction (600 MW total) to 400 MW in each direction (800 MW total). MATL may construct the line using conductors and insulators designed to carry the additional wattage."

In the same document referenced above, Tonbridge stated:

[1] *Management's Discussion and Analysis*, Sept. 30, 2006; p.11.

Page 1

Response 345: At this time no plans have been made by MATL to use the excess fiber capacity for commercial purposes. See Section 2.3.

Response 346: In response to a question posed by DEQ about MATL's plans to enlarge the project in the future, MATL indicated (letter dated January 4, 2007) that:

"a. MATL had applied and designed for a path rating of 300 MW in both directions.

b. The1590 kcmil Falcon conductor selected for the project can carry up to 600 MW and ensures low line losses at the current applied for capacity of 300 MW.

c. MATL's Board of directors has not approved an initiative to increase the capacity of the project beyond 300 MW. The capacity of this project could only be increased after the appropriate technical, economic and regulatory requirements have been met."

The line is rated at 300 MW of continuous load at the present time. Whether the line takes 300 MW from north to south, south to north or midpoint each direction, the line is still rated at 300 MW, not 450 or 600 MW. The mention of a 400 MW potential loading is explained in that if the MATL line would be loaded to the 300 MW, an extra contingency load of up to 100 MW must be carried by the line to support existing power facilities in the area in case of outages on other transmission lines.

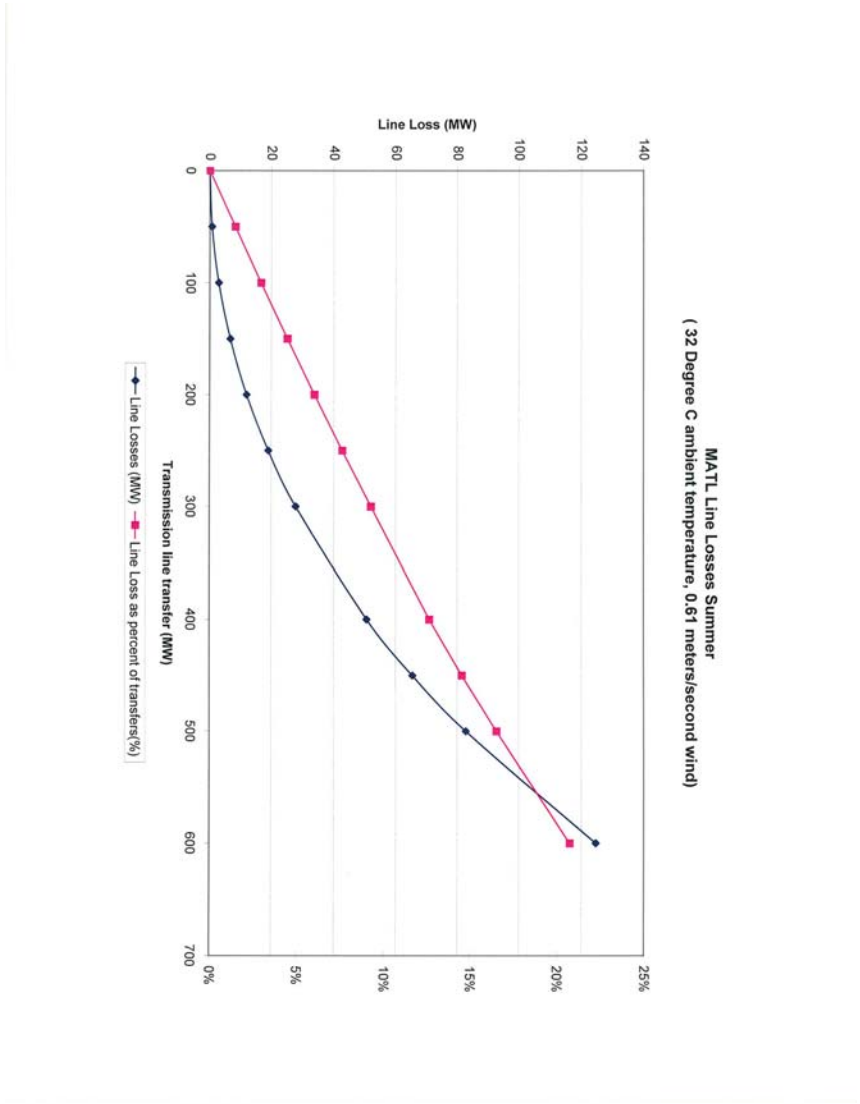
Table 2.3-1 indicates the thermal capacity of the line rated at 625 MVA at 212° Fahrenheit which equates to 600 MW at a .96 power factor. The current flow at 600 MW would result in extremely high line losses that make that load economically infeasible. If this conductor were to carry 600 MW, roughly 20 percent of the energy (roughly 115 MW) would be lost in transport (MATL 2007b). MATL has made commitments to its customers who have signed contracts that line losses will not exceed 10 percent. The two attached figures show the estimated line losses during winter and summer conditions.

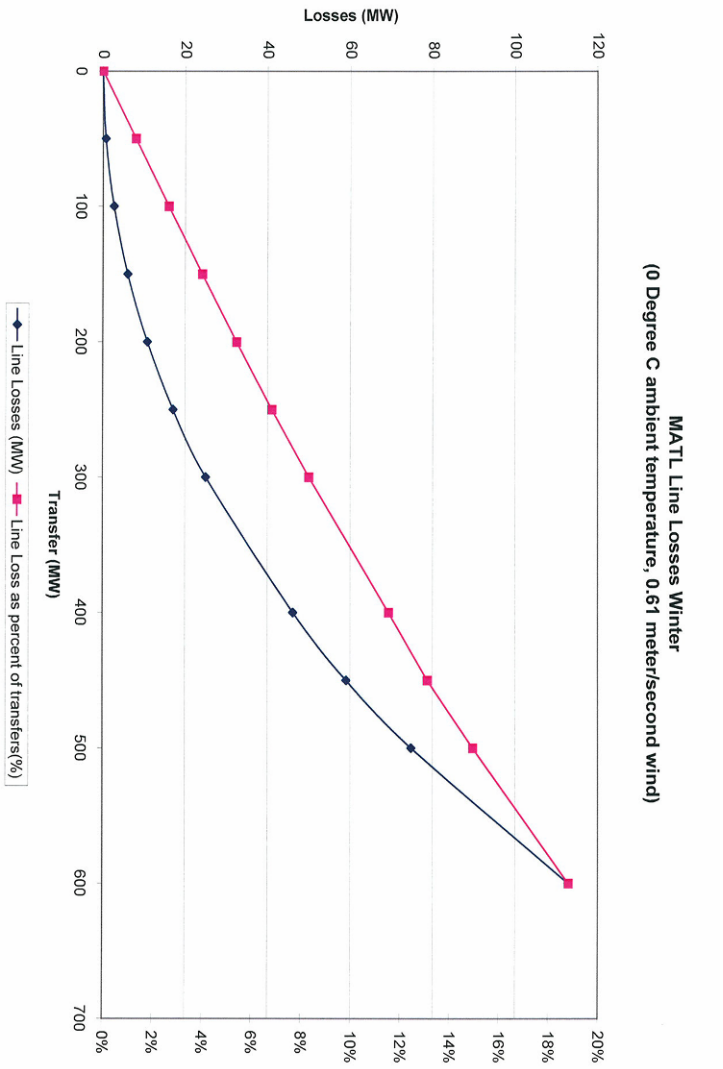
The comment assumes that there would be a 25 percent increase in revenue with little additional cost. According to MATL (2007b) to increase the capacity to 400 or 600 MW a second phase shifting transformer could theoretically be installed in parallel at the substation near Lethbridge, but engineering studies would be required to confirm the practicality of installing this equipment and the limitations on incremental capacity that could be added this way. MATL estimates that the engineering studies and procurement and installation of a second phase shifting transformer would cost $15 to $20 million (USD).

In addition, the voltage level at the Marias substation is forecast to drop below WECC standards when power transfers between the Great Falls and Lethbridge terminals are in the range of 390 to 450 MW, depending on system conditions. It may be possible to raise the "end-to-end" power transfer rate beyond this range by installing additional series and/or shunt capacitors. Engineering studies would be required to confirm the feasibility of this proposed solution. The estimated range of costs to conduct such studies, perform the detailed engineering, procure and construct the additional capacitors is $10 to $15 million (USD).

Lastly, the delivery and take–away capacity at Great Falls and Lethbridge would require upgrades to transfer more than 300 MW of power. MATL has not submitted interconnection requests to either NorthWestern Energy or the Alberta Electric System Operator for the upgrades required to transfer 400 or 600 MW into their respective systems, so the costs of these upgrades is not known. MATL is contributing approximately $5 million for network upgrades at NorthWestern Energy's Great Falls substation as part of MATL's existing 300 MW interconnection request.

MATL's right of way and safety zone are wide enough to handle 600 MW.


MATL Line Losses Summer
(32 Degree C ambient temperature, 0.61 meters/second wind)
Line Loss (MW)
Transmission line transfer (MW)
Line Losses (MW)
Line Loss as percent of transfers(%)


MATL Line Losses Winter
(0 Degree C ambient temperature, 0.61 meter/second wind)
Losses (MW)
Transfer (MW)
Line Losses (MW)
Line Loss as percent of transfers(%)

> Detailed design on the actual line route has commenced, ... As part of the design, the size and rating of conductor and the impact on weight on pole requirements has been decided, ... The Company has been advised the range of thermal capacity of the selected conductor, at acceptable line loss performance in the most adverse wind and temperature condition, is at least like to be 450 MWs or higher.[2]

If these larger wattage conductors are included in the construction costs referenced in Table 4.5-1, what would the cost be if MATL used conductors rated for the 300 MW capacity line?

Since the Company has chosen the larger capacity conductor, why should MATL be able to increase its revenue stream by 25% with little cost to itself, and yet be allowed to claim it is not economically feasible to build the line as laid out in Agency Alternative 4? The possibility of this increased revenue stream seems great considering the Company received requests for 5 times the available capacity which was up for bid in the June 2006 capacity auction.[3]

3. Alternative Considered But Dismissed Comment 347

On pages 2-45–47, four proposals were dismissed solely on the grounds of higher costs: a) guyed vs. self-supporting angle and dead end structures, b) underground line, c) monopoles, and d) tie-in to WAPA's system at Shelby.

Why is it appropriate for the agency to dismiss alternatives based upon concern for MATL's costs (all of which are recoverable in the market) and yet ignore the costs incurred by farmers when these line structures are placed diagonally in cropland? The agency admits the costs to farmers are higher, but the preliminary approved route and design do not require the Company to use monopoles placed on field lines.

For the agency to rely on the Company to somehow mitigate these increased costs with some yet-to-be-calculated and agreed upon payment is not appropriate. The Company is not required by law to make such payments and if no agreement can be reached as to the amount of the payment, the farmer will simply have to absorb the increased costs when the Company exercises its power of eminent domain to build the line. The agency, in its preliminary selected action, seems willing to protect MATL from any declared increased costs, but is not willing to protect farmers from the same fate.

---

[2] *Id.*

[3] http://www.tonbridgepower.com/MATL/eco.asp, ¶2.

Page 2

Response 347: Costs to the applicant as well as costs to society are considerations under the Major Facility Siting Act, which is the regulatory statute under which one permitting decision will be made. A revised discussion of costs to farm around structures is found in Section 3.13.

This is not the proper balancing of factors the agency is supposed to use in order to comply with the MFSA, MEPA, and ARM 17.20.1607.

4. Tax Revenues Comment 348

Table 3.13-11 of the report sets out "Tax Benefit Estimates" for the various counties in which the line is to be built. The agency discusses these benefits as a positive socioeconomic factor regarding the proposed project. However, these revenues are very possibly going to be cut by 75% when a bill supported by Gov. Schweitzer is introduced and passed by the current Legislature.

5. MATL's Easement Payments Comment 349

On page 4-18 of the report, the agency discusses easement payments which are not part of the proper legal analysis required of the Department:

> MATL has already negotiated easements across portions of the proposed Project alignment. The cost to MATL is unknown. If MATL has already paid for right-of-way access to lands that may be crossed by the Alternative 2 alignment, and that alignment is not permitted, MATL may lose the money already spent.

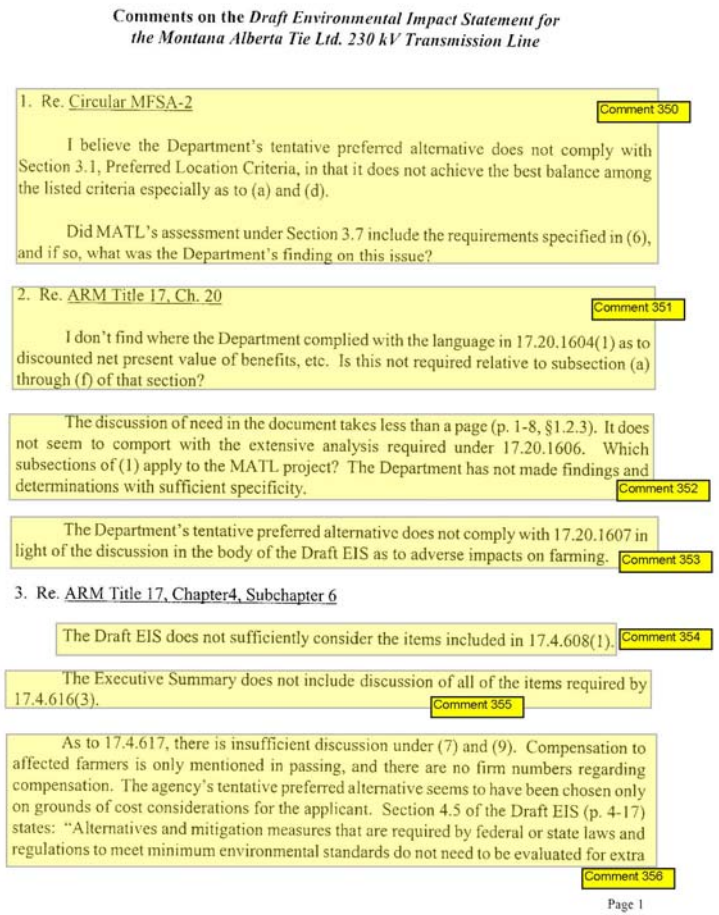
The decision by MATL to seek and pay for easements on any particular route prior to this agency's review was a business decision it was free to make. It took such action at its own risk, and the agency should not base decisions about the project on any such payments. There appears to be no legal authority for such a consideration.

Respectfully submitted this 27th day of March, 2007, at the Conrad hearing.

Katrina Wilson Martin
1720 24th Ln NE
Dutton, MT 59433
463-2337

Response 348: See the revised discussion on land values in Section 3.13. Recent legislation reduced the estimated tax revenues from the project.

Response 349: The Montana Environmental Policy Act requires DEQ to disclose the costs to the applicant of its regulations, whether or not the cost can properly be used as a decision criterion. Costs must be considered under the Montana Major Facility Siting Act when making a finding required under 75-20-301(1)(c), MCA, prior to certification that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives. Easement payments made before a permit is issued are the applicant's responsibility.



Comments on the *Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. 230 kV Transmission Line*

1. Re. Circular MFSA-2 — Comment 350

I believe the Department's tentative preferred alternative does not comply with Section 3.1, Preferred Location Criteria, in that it does not achieve the best balance among the listed criteria especially as to (a) and (d).

Did MATL's assessment under Section 3.7 include the requirements specified in (6), and if so, what was the Department's finding on this issue?

2. Re. ARM Title 17, Ch. 20 — Comment 351

I don't find where the Department complied with the language in 17.20.1604(1) as to discounted net present value of benefits, etc. Is this not required relative to subsection (a) through (f) of that section?

The discussion of need in the document takes less than a page (p. 1-8, §1.2.3). It does not seem to comport with the extensive analysis required under 17.20.1606. Which subsections of (1) apply to the MATL project? The Department has not made findings and determinations with sufficient specificity. Comment 352

The Department's tentative preferred alternative does not comply with 17.20.1607 in light of the discussion in the body of the Draft EIS as to adverse impacts on farming. Comment 353

3. Re. ARM Title 17, Chapter4, Subchapter 6

The Draft EIS does not sufficiently consider the items included in 17.4.608(1). Comment 354

The Executive Summary does not include discussion of all of the items required by 17.4.616(3). Comment 355

As to 17.4.617, there is insufficient discussion under (7) and (9). Compensation to affected farmers is only mentioned in passing, and there are no firm numbers regarding compensation. The agency's tentative preferred alternative seems to have been chosen only on grounds of cost considerations for the applicant. Section 4.5 of the Draft EIS (p. 4-17) states: "Alternatives and mitigation measures that are required by federal or state laws and regulations to meet minimum environmental standards do not need to be evaluated for extra

Comment 356

Page 1

Response 350: MFSA-2 describes information that an applicant must include in its application. The required information includes at least two alternative locations for the facility proposed by the applicant and the applicant's identification of its preferred facility location. MFSA-2 does not completely govern DEQ's selection of a preferred alternative. Other required findings are listed in 75-20-301, MCA and in ARM 17.20.1607. MATL's application contained the assessment of public attitudes and concerns required by MFSA-2(3.7)(6).

Response 351: If DEQ is able to make the findings necessary for certification, the findings, including findings on public interest, convenience and necessity, will be set forth in the Record of Decision.

Response 352: If DEQ is able to make the findings necessary for certification, the findings, including findings on the need for the facility, will be set forth in the Record of Decision.

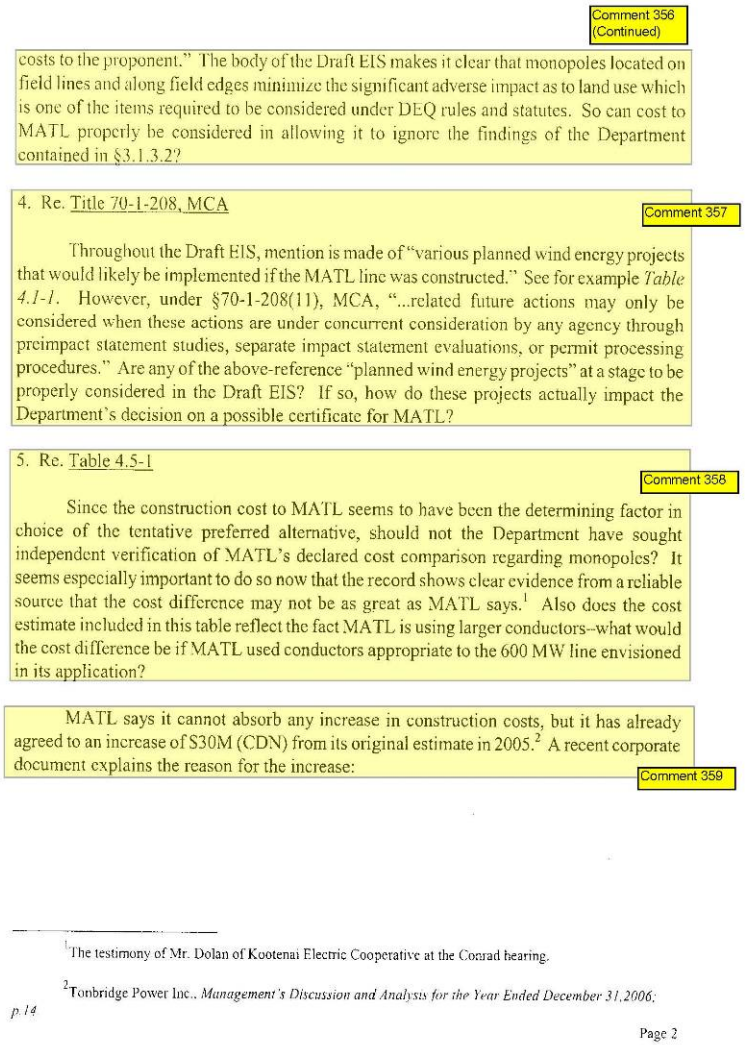
Response 353: Thank you for your opinion. See response to comment 351. The supplemental draft EIS contains additional analysis of the proposed project's impact on farming. If DEQ is able to make the findings necessary for certification, the findings, including findings on minimum adverse environmental impacts, will be set forth in the Record of Decision.

Response 354: Thank you for your opinion. Discussions regarding the significance of impacts on the quality of the human environment are found throughout Chapter 3.

Response 355: The Summary describes the proposed action and alternatives and Figure S-1 shows their locations. The Summary also lists ten issues that were identified based, in part, on public comment. Table S-5 summarizes the impacts of the alternatives, including tradeoffs among alternatives and conclusions regarding the issues identified during scoping. The agencies' preferred alternative was identified in the cover letter to the March 2007 document.

At the time the draft EIS was published, little information was available to the agencies regarding cost to farmers. Additional information has been procured and is provided in 3.13. The reference to Section 4.20 is for the regulatory restrictions analysis required by the Montana Environmental Policy Act. The EIS must disclose the economic impact on the applicant of additional requirements imposed by the agency that are not absolutely required by law. This information must be provided whether or not cost to the applicant is a decision criterion under the permitting statute.

Response 356: The state has no regulatory authority over wind farms, so no state agency is concurrently considering wind farm permitting. While, strictly speaking, the Montana Environmental Policy Act would not require wind farms to be considered in the cumulative impacts analysis, the EIS was prepared jointly by DEQ and DOE, and so must also comply with the National Environmental Policy Act. The National Environmental Policy Act requires that "reasonably foreseeable future actions" be considered in the cumulative impacts analysis. Because some wind generation firms have contracted for capacity on the MATL line, it is assumed the wind farm development is reasonably foreseeable. Very little information is available about developers' plans. Additional information on the impacts of wind farms is provided in Chapters 3 and 4. ARM 17.20.1604 says that DEQ must take into account "the effects of the economic activity resulting from the proposed facility."



Comment 356 (Continued)

costs to the proponent." The body of the Draft EIS makes it clear that monopoles located on field lines and along field edges minimize the significant adverse impact as to land use which is one of the items required to be considered under DEQ rules and statutes. So can cost to MATL properly be considered in allowing it to ignore the findings of the Department contained in §3.1.3.2?

4. Re. Title 70-1-208, MCA

Comment 357

Throughout the Draft EIS, mention is made of "various planned wind energy projects that would likely be implemented if the MATL line was constructed." See for example *Table 4.1-1*. However, under §70-1-208(11), MCA, "...related future actions may only be considered when these actions are under concurrent consideration by any agency through preimpact statement studies, separate impact statement evaluations, or permit processing procedures." Are any of the above-reference "planned wind energy projects" at a stage to be properly considered in the Draft EIS? If so, how do these projects actually impact the Department's decision on a possible certificate for MATL?

5. Re. Table 4.5-1

Comment 358

Since the construction cost to MATL seems to have been the determining factor in choice of the tentative preferred alternative, should not the Department have sought independent verification of MATL's declared cost comparison regarding monopoles? It seems especially important to do so now that the record shows clear evidence from a reliable source that the cost difference may not be as great as MATL says.[1] Also does the cost estimate included in this table reflect the fact MATL is using larger conductors–what would the cost difference be if MATL used conductors appropriate to the 600 MW line envisioned in its application?

MATL says it cannot absorb any increase in construction costs, but it has already agreed to an increase of $30M (CDN) from its original estimate in 2005.[2] A recent corporate document explains the reason for the increase:

Comment 359

[1] The testimony of Mr. Dolan of Kootenai Electric Cooperative at the Conrad hearing.

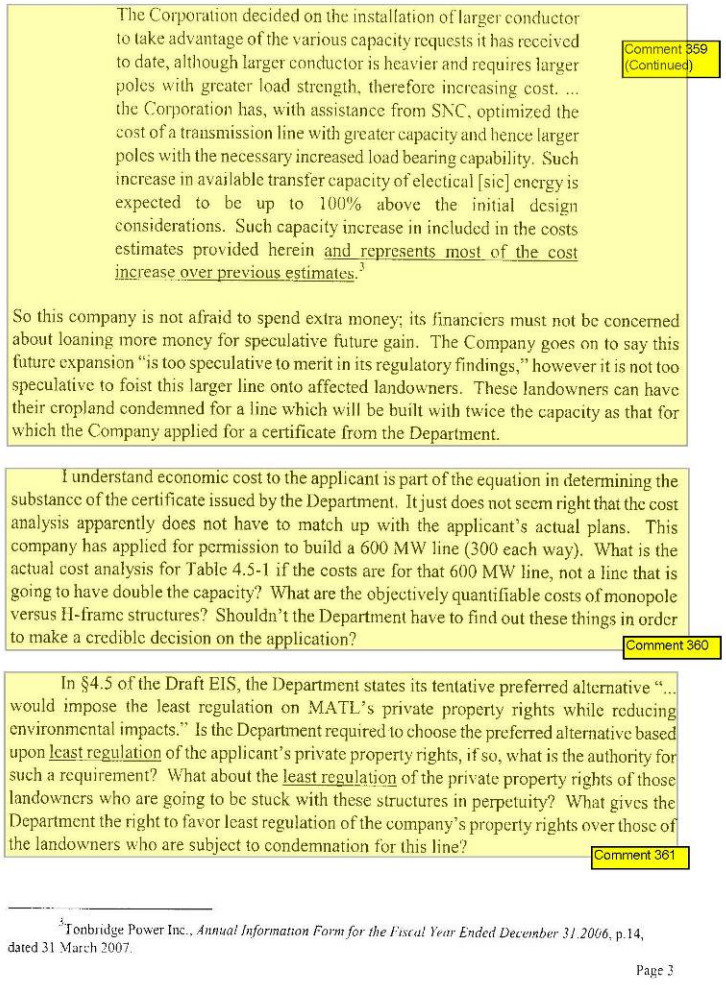
[2] Tonbridge Power Inc., *Management's Discussion and Analysis for the Year Ended December 31,2006; p.14*

Page 2

Response 357: Wind farms are not under concurrent consideration by any agency and, thus, DEQ would not be allowed to include wind farms in its cumulative impacts analysis under Section 75-1-208, MCA, if it were not preparing a joint environmental review document with DOE. Pursuant to ARM 17.4.627, whenever a state agency prepares a joint environmental impact statement that must comply with National Environmental Policy Act and Montana Environmental Policy Act, the joint document must be prepared in compliance with both statutes. The state agency may accede to and follow more stringent federal requirements, such as additional content. National Environmental Policy Act requires reasonably foreseeable future actions to be included in the cumulative impacts analysis, not just those undergoing concurrent review. In order to comply with the more stringent federal requirement, DEQ has prepared this supplement to the draft environmental impact statement that, in part, includes a cumulative impacts analysis regarding wind farms.

Response 358: The agencies contracted with an independent consulting firm, HDR in Billings, MT, to review MATL's costs. HDR compared the MATL costs to similar projects they have completed or have estimated and agree with the MATL costs at this time. HDR noted that the labor and material prices are very volatile presently and cost estimates are subject to change in short periods of time.

Response 359: Comment noted.



The Corporation decided on the installation of larger conductor to take advantage of the various capacity requests it has received to date, although larger conductor is heavier and requires larger poles with greater load strength, therefore increasing cost. ... the Corporation has, with assistance from SNC, optimized the cost of a transmission line with greater capacity and hence larger poles with the necessary increased load bearing capability. Such increase in available transfer capacity of electical [sic] energy is expected to be up to 100% above the initial design considerations. Such capacity increase in included in the costs estimates provided herein and represents most of the cost increase over previous estimates.[3]

Comment 359 (Continued)

So this company is not afraid to spend extra money; its financiers must not be concerned about loaning more money for speculative future gain. The Company goes on to say this future expansion "is too speculative to merit in its regulatory findings," however it is not too speculative to foist this larger line onto affected landowners. These landowners can have their cropland condemned for a line which will be built with twice the capacity as that for which the Company applied for a certificate from the Department.

I understand economic cost to the applicant is part of the equation in determining the substance of the certificate issued by the Department. It just does not seem right that the cost analysis apparently does not have to match up with the applicant's actual plans. This company has applied for permission to build a 600 MW line (300 each way). What is the actual cost analysis for Table 4.5-1 if the costs are for that 600 MW line, not a line that is going to have double the capacity? What are the objectively quantifiable costs of monopole versus H-frame structures? Shouldn't the Department have to find out these things in order to make a credible decision on the application?

Comment 360

In §4.5 of the Draft EIS, the Department states its tentative preferred alternative "... would impose the least regulation on MATL's private property rights while reducing environmental impacts." Is the Department required to choose the preferred alternative based upon least regulation of the applicant's private property rights, if so, what is the authority for such a requirement? What about the least regulation of the private property rights of those landowners who are going to be stuck with these structures in perpetuity? What gives the Department the right to favor least regulation of the company's property rights over those of the landowners who are subject to condemnation for this line?

Comment 361

[3] Tonbridge Power Inc., *Annual Information Form for the Fiscal Year Ended December 31 2006*, p.14, dated 31 March 2007.

Page 3

Response 360: Comment noted. Refer to response to comment 358 for information on a third party review of MATL's cost estimates.

Response 361: The agencies are not required to choose a preferred alternative based only on cost to the applicant. The statement in Section 4.5 of the March 2007 document is simply a statement of fact of the regulatory restrictions analysis required by the Montana Environmental Policy Act. The legal requirement to disclose the regulatory impact on the applicant's private property rights applies only to the applicant and not to other people who might be affected by the permitting action. This is a matter of law, not DEQ's choice. The cost to the applicant may be a factor in the permitting decision, but it is not the only factor.

In §4.4 the Department states: "Because Alternative 4 contains additional environmental mitigation measures for avoiding adverse impacts to farming, riparian areas, and surface water, this alternative presents the most protective alternative for the maintenance and enhancement of long-term productivity of the environment while benefitting socio-economic resources." When the Department balanced the factors to make its decision, apparently these clear benefits of Alternative 4 are not entitled to as much weight as the least regulation of MATL's property rights. Is this a proper interpretation of the strong environmental protection provisions set forth in our state's Constitution and the various statutes administered by the Department? Comment 362

Thank you very much for your consideration of these comments.

Respectfully submitted this 24th day of April, 2007 .

Katrina Wilson Martin
1720 24th Ln NE
Dutton, MT 59433
463-2337
katrinam@3rivers.net

Response 362: The Montana Legislature enacted the Major Facility Siting Act to implement the environmental provisions set forth in Article II, Section 3, and Article IX of the Montana Constitution. DEQ will make its certification decision based on the findings required by the Major Facility Siting Act in Section 75-20-301, MCA. These findings will be set forth in the Record of Decision.

Comments on the *Draft Environmental Impact Statement for the Montana Alberta Tie Ltd. 230 kV Transmission Line*

My name is Katrina Martin; my neighbors and I farm east of Dutton. On their behalf and my own, I rise in support of the Agency Alternative in the Draft EIS. Comment 363

Alternative 4 properly balances all the various factors the Montana statutues and the Department's administrative rules require. In the EIS's comparison of the alternatives, Alternative 4 is superior to the others in every way except minor impact to wetlands and the need for additional stream crossings.

Most importantly it minimizes the negative effects on land use. Eighty-eight percent (88%) of the study area is agricultural land, 69% is dryland cropland/CRP.[1] Reducing adverse impacts to this category of land is obviously critical in maintaining a balance between the benefits and disadvantages of the proposed project; the effects on cropland should be entitled to great weight when comparing the alternatives.

Although Alternative 4 is 10 miles longer than the tentatively preferred Alternative 2, it crosses 5 fewer miles of cropland/CRP.[2] Even more importantly, the line crosses diagonally on **50%** less cropland (27 miles versus 53 miles), and has a N/S, E/W orientation on 60 miles versus 40 miles.[3] These are huge considerations for the ag producers on the ground.

Alternative 4 also specifies the use of a long-span monopole structure in cropland/CRP. Such structures are obviously much less onerous to farm around and, when placed on field lines or at the edge of fields, they substantially reduce the long-term negative impacts on farming.

MATL states monopoles are more expensive to erect than the H-frame structures it wants to use. The cost difference used in the Draft EIS is $5 million. This constitutes a possible one-time expense which would greatly mitigate the life-time negative impact these structures place on farmers; such costly impacts, while not quantified by the agency, were clearly recognized and acknowledged.

Five million dollars is a lot of money; some say MATL cannot possibly be expected to spend that extra money to build the line described in Alternative 4. The total cost of the line

[1] *Draft EIS*, page ES-8; Table 3.1-2.

[2] *Id.*, Table 3.1-4.

[3] *Id.*, Table 3.1-3.

is projected at $100 million dollars or so; five percent extra hardly seems to justify wreaking economic hardship on so many folks on the ground.

MATL's refusal to spend the additional money comes at the same time its parent company, Tonbridge Power Inc., is telling prospective investors the following:

> "... the unique design of MATL's, FERC approved take or pay contracts, has provided the project with sufficient contracted revenues to date, ... , to yield $28.4 million in revenues with low expected costs in the first year after commissioning.[4] Comment 363 (Continued)
>
> ... annual revenues of $28.4 million by mid-2009 [will] increase at a contractual inflator rate of 2.5% per annum thereafter. Over the life of the project, gross revenue from these new twenty-five year contracts and existing long term contracts should total close to CDN$900 million.[5]

To me those numbers are staggering. This company is going to generate three-quarters of a billion US dollars in revenue, with low off-setting costs, over a 25-year period. Is it any wonder farmers are unwilling to accept the notion that the company cannot possibly afford to build Alternative 4?

We farmers have been told all of us have to sacrifice for the common good; we heard that sentiment expressed at the two earlier hearings. The degree of anger and resentment I feel when I hear such comments is hard to control. We <u>are</u> willing to sacrifice for the common good. We are not here arguing for the "No Action" alternative; we have never tried to stop the construction of this line. We all use electricity. We all want to see economic development in our region, but new development cannot properly be built on the backs of those who have long been engaged in the existing economic development.

Most of us are third or fourth generation Montanans who have farmed here for decades; we are committed to the state and to the land. We are more than willing to sacrifice for this line, even though it is a "merchant line" created merely for the profit of the owner. Our sacrifice however, should only require having to accommodate and farm around <u>90</u> miles of monopoles which will stand forever in our cropland. We should not have to sacrifice more just because this company may have to spend an extra $5million of its eventual $750 million.

[4] http://www.tonbridgepower.com/index.aspx

[5] http://www.tonbridgepower.com/MATLeco.asp

As with everything in life, there is a right way and a wrong way to do things. Alternative 4 is the right way to build this power line.

Comment 363 (Continued)

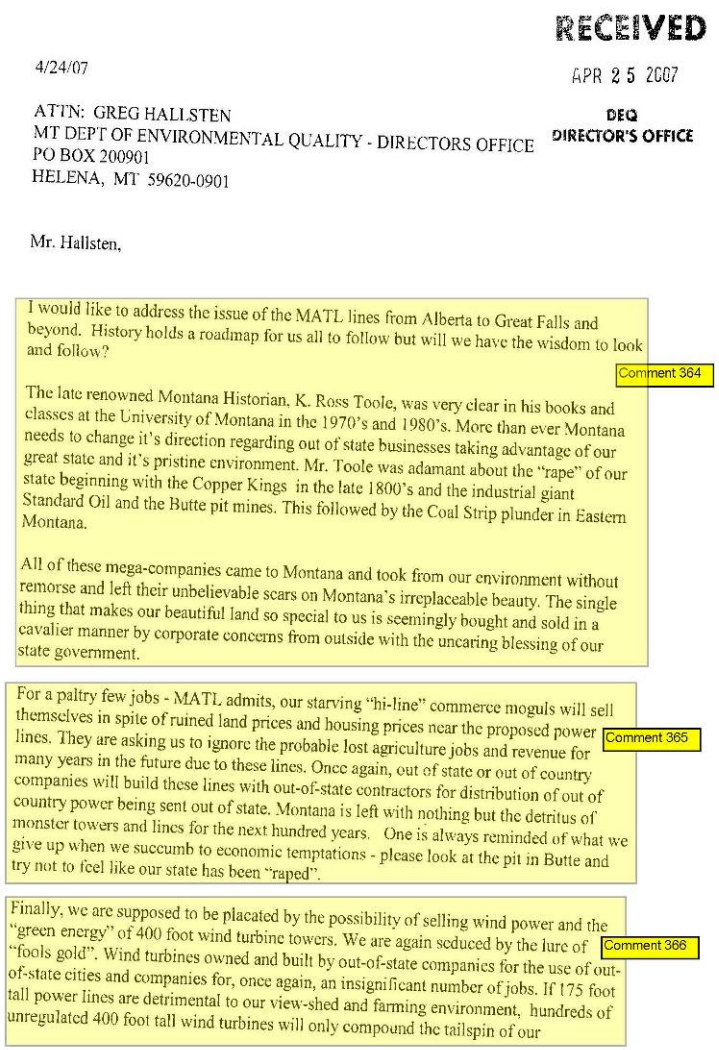
Thank you very much.

Respectfully submitted this 29th day of March, 2007, at the hearing in Great Falls, MT.

Katrina Wilson Martin
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463-2337
katrinam@3rivers.net

Page 3

Response 363: Comment noted.



RECEIVED
APR 25 2007
DEQ
DIRECTOR'S OFFICE

4/24/07

ATTN: GREG HALLSTEN
MT DEPT OF ENVIRONMENTAL QUALITY - DIRECTORS OFFICE
PO BOX 200901
HELENA, MT 59620-0901

Mr. Hallsten,

I would like to address the issue of the MATL lines from Alberta to Great Falls and beyond. History holds a roadmap for us all to follow but will we have the wisdom to look and follow?

Comment 364

The late renowned Montana Historian, K. Ross Toole, was very clear in his books and classes at the University of Montana in the 1970's and 1980's. More than ever Montana needs to change it's direction regarding out of state businesses taking advantage of our great state and it's pristine environment. Mr. Toole was adamant about the "rape" of our state beginning with the Copper Kings in the late 1800's and the industrial giant Standard Oil and the Butte pit mines. This followed by the Coal Strip plunder in Eastern Montana.

All of these mega-companies came to Montana and took from our environment without remorse and left their unbelievable scars on Montana's irreplaceable beauty. The single thing that makes our beautiful land so special to us is seemingly bought and sold in a cavalier manner by corporate concerns from outside with the uncaring blessing of our state government.

For a paltry few jobs - MATL admits, our starving "hi-line" commerce moguls will sell themselves in spite of ruined land prices and housing prices near the proposed power lines. They are asking us to ignore the probable lost agriculture jobs and revenue for many years in the future due to these lines. Once again, out of state or out of country companies will build these lines with out-of-state contractors for distribution of out of country power being sent out of state. Montana is left with nothing but the detritus of monster towers and lines for the next hundred years. One is always reminded of what we give up when we succumb to economic temptations - please look at the pit in Butte and try not to feel like our state has been "raped".

Comment 365

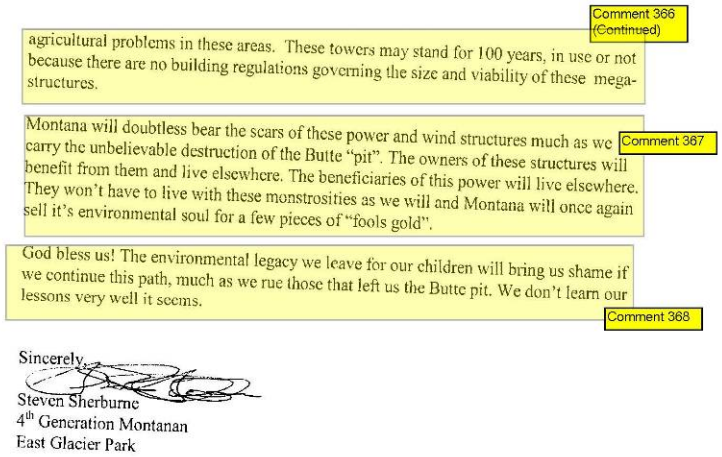
Finally, we are supposed to be placated by the possibility of selling wind power and the "green energy" of 400 foot wind turbine towers. We are again seduced by the lure of "fools gold". Wind turbines owned and built by out-of-state companies for the use of out-of-state cities and companies for, once again, an insignificant number of jobs. If 175 foot tall power lines are detrimental to our view-shed and farming environment, hundreds of unregulated 400 foot tall wind turbines will only compound the tailspin of our

Comment 366

Response 364: Comment noted.

Response 365: Comment noted. Costs and risks of the MATL line to Montana are discussed in the draft EIS. The benefits and cost of the MATL line to Montana are discussed in Sections 1.2 and 3.13. Potential impacts to Montana customers are discussed in Section 3.13.

Response 366: Comment noted. See response to comment 365. The draft EIS notes that visual impacts of the proposed line would be long term. Visual effects from wind farms would also be present for the life of these projects. DEQ environmental specifications (Appendix F) state that when the transmission line is no longer used or useful, structures, conductors, and ground wires shall be removed and disturbed areas reclaimed using methods outlined in the reclamation and revegetation plan. Decommissioning of wind farms could occur as agreed to between project owners and landowners.



agricultural problems in these areas. These towers may stand for 100 years, in use or not because there are no building regulations governing the size and viability of these mega-structures.

Comment 366 (Continued)

Montana will doubtless bear the scars of these power and wind structures much as we carry the unbelievable destruction of the Butte "pit". The owners of these structures will benefit from them and live elsewhere. The beneficiaries of this power will live elsewhere. They won't have to live with these monstrosities as we will and Montana will once again sell it's environmental soul for a few pieces of "fools gold".

Comment 367

God bless us! The environmental legacy we leave for our children will bring us shame if we continue this path, much as we rue those that left us the Butte pit. We don't learn our lessons very well it seems.

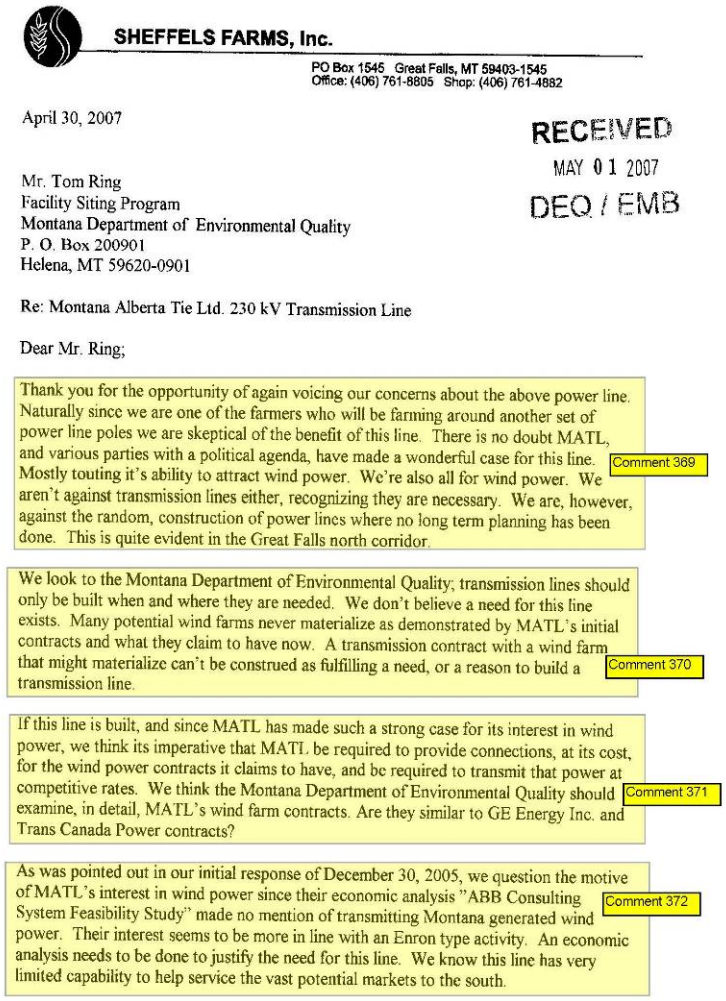
Comment 368

Sincerely,

Steven Sherburne
4th Generation Montanan
East Glacier Park

Response 367: Comment noted.

Response 368: Comment noted.



SHEFFELS FARMS, Inc.

PO Box 1545 Great Falls, MT 59403-1545
Office: (406) 761-8805 Shop: (406) 761-4882

April 30, 2007

RECEIVED
MAY 01 2007
DEQ / EMB

Mr. Tom Ring
Facility Siting Program
Montana Department of Environmental Quality
P. O. Box 200901
Helena, MT 59620-0901

Re: Montana Alberta Tie Ltd. 230 kV Transmission Line

Dear Mr. Ring;

Thank you for the opportunity of again voicing our concerns about the above power line. Naturally since we are one of the farmers who will be farming around another set of power line poles we are skeptical of the benefit of this line. There is no doubt MATL, and various parties with a political agenda, have made a wonderful case for this line. Mostly touting it's ability to attract wind power. We're also all for wind power. We aren't against transmission lines either, recognizing they are necessary. We are, however, against the random, construction of power lines where no long term planning has been done. This is quite evident in the Great Falls north corridor. Comment 369

We look to the Montana Department of Environmental Quality; transmission lines should only be built when and where they are needed. We don't believe a need for this line exists. Many potential wind farms never materialize as demonstrated by MATL's initial contracts and what they claim to have now. A transmission contract with a wind farm that might materialize can't be construed as fulfilling a need, or a reason to build a transmission line. Comment 370

If this line is built, and since MATL has made such a strong case for its interest in wind power, we think its imperative that MATL be required to provide connections, at its cost, for the wind power contracts it claims to have, and be required to transmit that power at competitive rates. We think the Montana Department of Environmental Quality should examine, in detail, MATL's wind farm contracts. Are they similar to GE Energy Inc. and Trans Canada Power contracts? Comment 371

As was pointed out in our initial response of December 30, 2005, we question the motive of MATL's interest in wind power since their economic analysis "ABB Consulting System Feasibility Study" made no mention of transmitting Montana generated wind power. Their interest seems to be more in line with an Enron type activity. An economic analysis needs to be done to justify the need for this line. We know this line has very limited capability to help service the vast potential markets to the south. Comment 372

Response 369: Comment noted.

Response 370: Comment noted. See response to comment 25.

Response 371: Owners of wind farms who have contracted for services with MATL are found in Table 4.1-2. In addition, the transmission tariff is set by FERC, not by the agencies.

Response 372: Your opinion is noted. See response to comment 365.

We still remember MATL's initial response to our question; "Why don't you connect at either Shelby or Cut Bank?" It was, because it would not be economically feasible to pay the tariffs on the existing lines. Certainly not a reason, or a need, for a third line to the same area Comment 373

Remember MATL expects to make $28.4 million in revenues with low expected costs in the first year after commissioning.[1] There should be no financial problem with being fair with landowners and doing it right. They should be required to avoid cropland wherever possible, use single poles, provide wind power connections, and a method of insuring payments of easements and maintenance since we are dealing with a foreign company. Comment 374

As stated in an earlier response, routing No. 4 with alignment north of existing lines on our farm is unacceptable.

Sheffels Farms, Inc.

John Sheffels Jim Sheffels

Enc.

[1] http://www.tonbridgepower.com/

2

Response 373: A discussion about MATL tying into the Shelby substation as an alternative is found in Section 2.7, Alternatives Considered but Dismissed. Also see the response to comment 40.

Response 374: Comment noted.

Hallsten, Greg

From: chere@preservemontana.org
Posted At: Monday, April 30, 2007 11:16 PM
Conversation: MATL comments from MPA
Posted To: MATL

Subject: MATL comments from MPA

MATL comments from MPA.doc (18...

Dear Mr.Hallsten

Comment 375

We are writing to offer our perspective on the Montana-Alberta Tie Line project, proposed to run from Great Falls to Lethbirdge, Alberta. Before we do, however, we would note that a large number of interested groups representing various public audiences were contacted and consulted during the development of the alternatives discussed in the EIS. However, groups interested in the cultural resources in the area were inadequately represented. We would request, therefore, that in future discussions of this project and other EIS processes that DEQ is coordinating, that the cultural heritage of our state not be overlooked. Please add Montana Preservation Alliance to the list of interested public and parties to be consulted as proposals which may impact Montana's cultural resources are developed.

Thank you for the opportunity to comment.
Sincerely,
Chere Jiusto

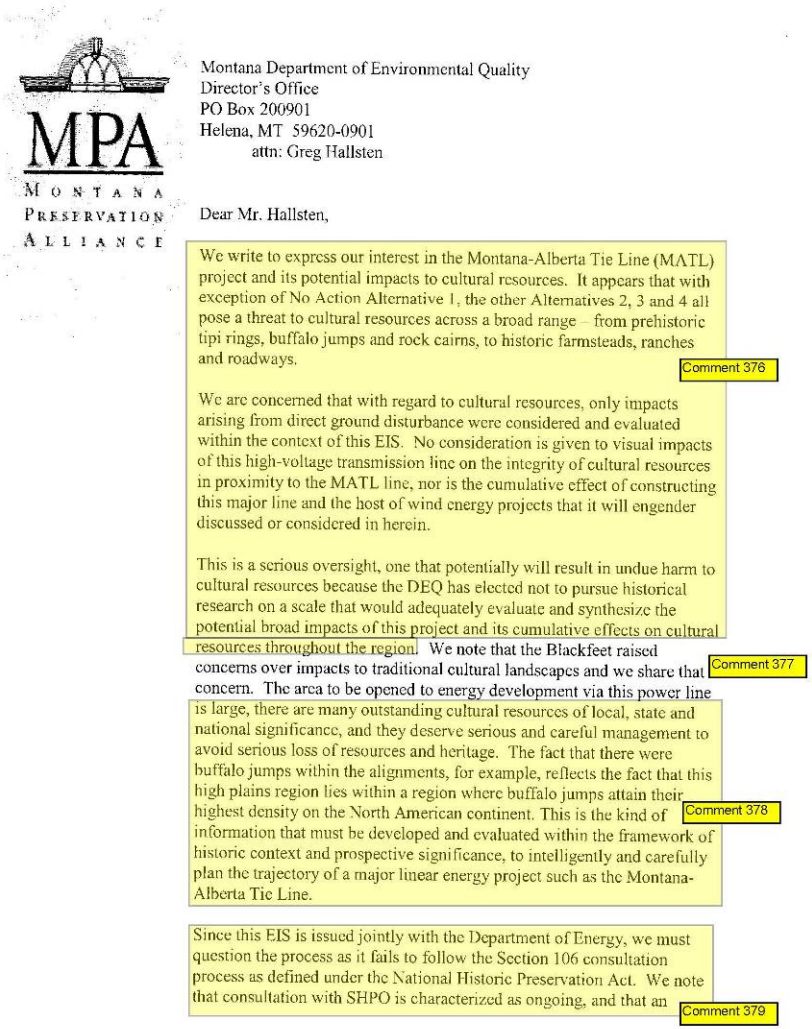
Executive Director
Montana Preservation Alliance
516 N. Park Ave., Suite A
Helena, MT 59601
406-457-2822

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mail2web.com - Microsoft® Exchange solutions from a leading provider -
http://link.mail2web.com/Business/Exchange

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Response 375: Comment noted. Montana Preservation Alliance been added to the list of interested parties.



MPA
MONTANA PRESERVATION ALLIANCE

Montana Department of Environmental Quality
Director's Office
PO Box 200901
Helena, MT 59620-0901
attn: Greg Hallsten

Dear Mr. Hallsten,

We write to express our interest in the Montana-Alberta Tie Line (MATL) project and its potential impacts to cultural resources. It appears that with exception of No Action Alternative 1, the other Alternatives 2, 3 and 4 all pose a threat to cultural resources across a broad range – from prehistoric tipi rings, buffalo jumps and rock cairns, to historic farmsteads, ranches and roadways. Comment 376

We are concerned that with regard to cultural resources, only impacts arising from direct ground disturbance were considered and evaluated within the context of this EIS. No consideration is given to visual impacts of this high-voltage transmission line on the integrity of cultural resources in proximity to the MATL line, nor is the cumulative effect of constructing this major line and the host of wind energy projects that it will engender discussed or considered in herein.

This is a serious oversight, one that potentially will result in undue harm to cultural resources because the DEQ has elected not to pursue historical research on a scale that would adequately evaluate and synthesize the potential broad impacts of this project and its cumulative effects on cultural resources throughout the region. We note that the Blackfeet raised concerns over impacts to traditional cultural landscapes and we share that concern. Comment 377 The area to be opened to energy development via this power line is large, there are many outstanding cultural resources of local, state and national significance, and they deserve serious and careful management to avoid serious loss of resources and heritage. The fact that there were buffalo jumps within the alignments, for example, reflects the fact that this high plains region lies within a region where buffalo jumps attain their highest density on the North American continent. This is the kind of Comment 378 information that must be developed and evaluated within the framework of historic context and prospective significance, to intelligently and carefully plan the trajectory of a major linear energy project such as the Montana-Alberta Tie Line.

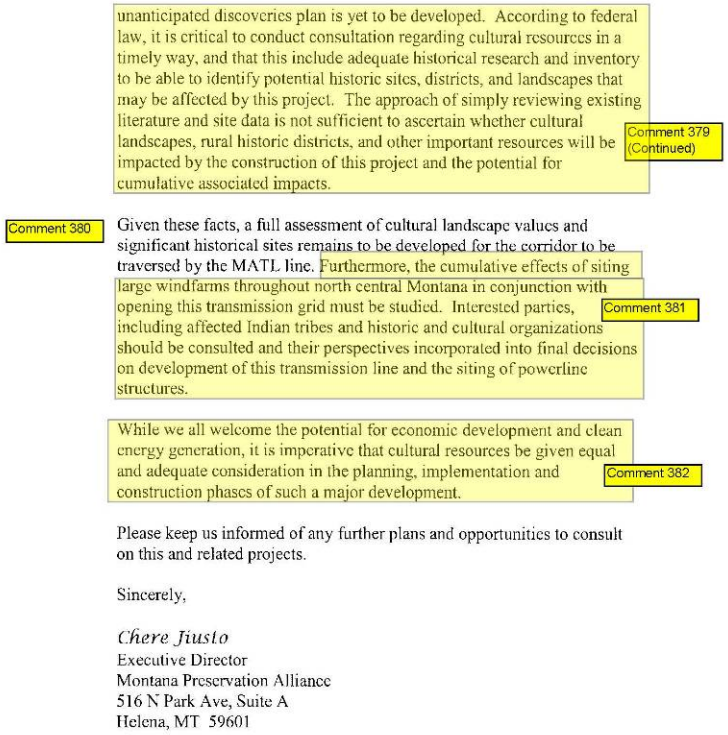
Since this EIS is issued jointly with the Department of Energy, we must question the process as it fails to follow the Section 106 consultation process as defined under the National Historic Preservation Act. We note that consultation with SHPO is characterized as ongoing, and that an Comment 379

Response 376: The discussion contained in the draft EIS was based largely on extant information available in literature and data file searches as on-the-ground information was not yet available. Thorough cultural resource inventories have now been completed, identifying all historic properties in close proximity to the proposed right-of-way and addressing issues such as landscape and traditional cultural properties. There is not a serious oversight on our part; the draft EIS was not intended to satisfy Section 106 of the National Historic Preservation Act and the data analysis was not yet available for inclusion in the draft EIS.

Response 377: In most areas, the existing landscape has been completely modified by the advent of agricultural pursuits, and both residential and industrial construction. No traditional cultural properties or landscapes were identified by the recent cultural resources inventory.

Response 378: The cultural resource inventory that was conducted addressed historic and prehistoric contexts and evaluated site significance within those contexts. A buffalo jump site was identified by the cultural resource inventory. As this concern is locale specific, if this alternative is chosen, the actual location of the proposed power line will be adjusted to avoid direct impacts to the prehistoric site. In almost all cases, avoidance of prehistoric sites is the preferred choice of mitigating impacts, and pole locations on the selected alternative will be adjusted to avoid impacts to sites and features.

Response 379: The March 2007 document was prepared on the basis of extant data; communication with the SHPO and the public was ongoing in accordance with the required procedures of the National Environmental Policy Act/Montana Environmental Policy Act processes. Cultural inventories designed to satisfy the requirements of Section 106 of the National Historic Preservation Act (NHPA), and consultations with the SHPO and other required parties were not completed at the time and were not included in its preparation. In July 2007, pursuant to the NHPA, DOE initiated consultation with the State Historic Preservation Office and with the Blackfeet Nation and the Confederated Salish and Kootenai Tribes.



unanticipated discoveries plan is yet to be developed. According to federal law, it is critical to conduct consultation regarding cultural resources in a timely way, and that this include adequate historical research and inventory to be able to identify potential historic sites, districts, and landscapes that may be affected by this project. The approach of simply reviewing existing literature and site data is not sufficient to ascertain whether cultural landscapes, rural historic districts, and other important resources will be impacted by the construction of this project and the potential for cumulative associated impacts.

Comment 379 (Continued)

Comment 380

Given these facts, a full assessment of cultural landscape values and significant historical sites remains to be developed for the corridor to be traversed by the MATL line. Furthermore, the cumulative effects of siting large windfarms throughout north central Montana in conjunction with opening this transmission grid must be studied. Interested parties, including affected Indian tribes and historic and cultural organizations should be consulted and their perspectives incorporated into final decisions on development of this transmission line and the siting of powerline structures.

Comment 381

While we all welcome the potential for economic development and clean energy generation, it is imperative that cultural resources be given equal and adequate consideration in the planning, implementation and construction phases of such a major development.

Comment 382

Please keep us informed of any further plans and opportunities to consult on this and related projects.

Sincerely,

Chere Jiusto
Executive Director
Montana Preservation Alliance
516 N Park Ave, Suite A
Helena, MT 59601

Response 380: An intensive cultural resource inventory sufficient to satisfy all requirements of Section 106 of the NHPA has been completed and all appropriate cultural issues have been addressed in the cultural report. Formal consultations with the SHPO and with the Blackfeet Nation and the Confederated Salish and Kootenai Tribes were initiated in July 2007. As stated in response to comment 68 above, some of the wind generation proposed to be constructed in Montana has not yet been designed and therefore cannot be analyzed in detail. Nevertheless, this Draft EIS contains discussion of the impacts associated with wind farm development in Chapter 4.

Response 381: Appropriate cultural investigations and analysis will be conducted when such large wind farm projects and power line facilities are proposed. Cultural resource evaluations are largely locale specific and speculating about the effects of yet-to-be-proposed facilities on cultural resources is conjectural. Details on wind farm locations, number of turbines and other project-specific information are lacking. This information is not necessary for certification of the transmission line. Wind farm developers would complete necessary cultural resource investigations when wind farm projects are proposed and locations of turbines and roads are known. The description of potential visual impacts associated with wind farm development has been expanded in this document.

Response 382: Cultural resources have been and are being given equal and adequate consideration in the planning, implementation and construction phases of this project. Data gathering and analysis sufficient to meet the requirements of the NHPA were not completed at the time of release of the March 2007 document. DOE has now initiated consultation with the SHPO, the Blackfeet Nation, the Confederated Salish and Kootenai Tribes pursuant to Section 106 of the NHPA.

Hallsten, Greg

From: Calanthe Wilson-Pant [kaalipant@gmail.com]
Posted At: Monday, April 30, 2007 10:44 PM
Conversation: Montana-Alberta Line
Posted To: MATL
Subject: RE: Montana-Alberta Line

Dear Mr. Hallsten,

Comments 383 through 387

383 I am writing in favor of the line to Alberta from Great Falls. Since any electricity developed in the Great Falls area currently is extremely limited to distribution, given the lack of connection to the grid, I feel this is very important for the economic development of the Great Falls area. Especially, I am excited
384 about the development of wind electricity. I am also in favor of the IGCC plant planned for the
385 industrial park north of Great Falls. I feel that this line is important for that plant as well. Montana needs
386 to look more to cooperation with Canada for economic development. I do hope that provisions can be
387 made to minimize the impact on the farmers, such as putting the poles along the field edges as opposed to the middle of the fields. The equipment now used for farming has become so large that I am sure it is very difficult to maneuver around a major obstacle.

Sincerely,

M. Calanthe Wilson-Pant, M.D.
Board Certified Family Physician,
Occupational Physician,
Board Eligible Clinical Geneticist,
Member of Citizens for Clean Energy,
P.O. Box 581
Cascade, MT 59421
406-468-4067
Email: calanthewilson@alumni.bowdoin.edu

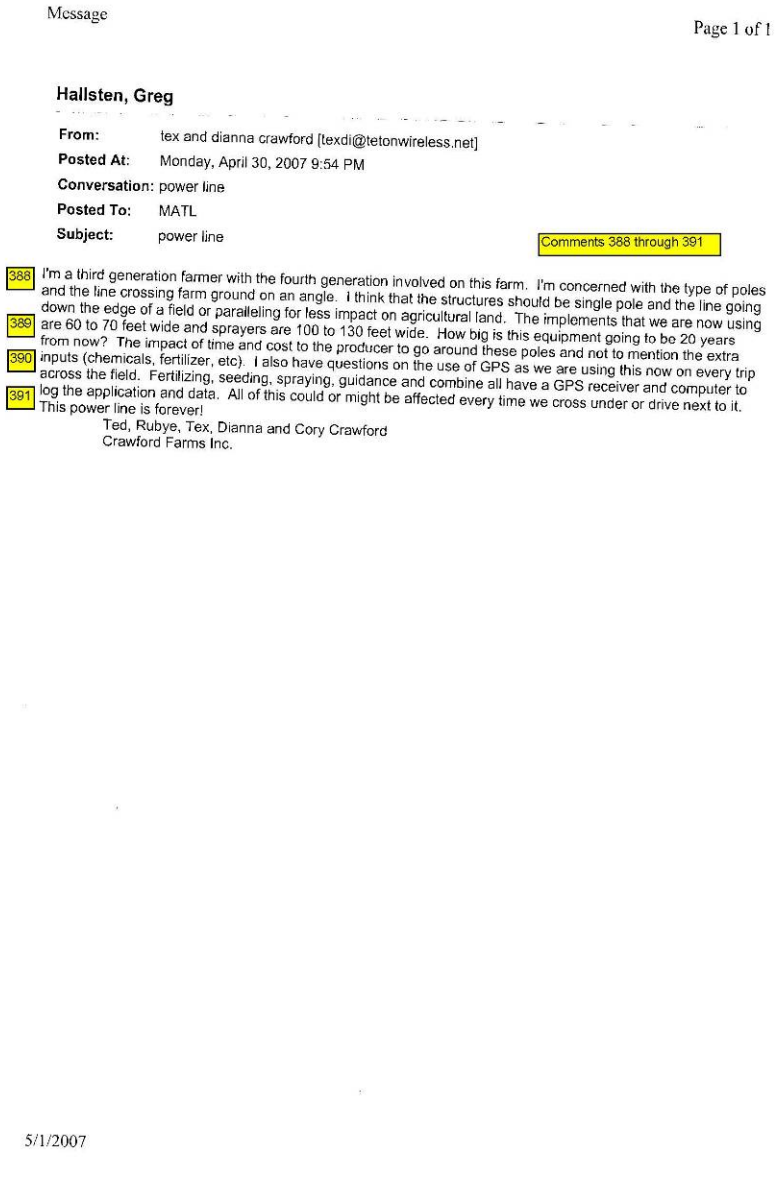
Response 383: Comment noted.

Response 384: Comment noted.

Response 385: Comment noted.

Response 386: Comment noted.

Response 387: Comment noted.



Message

Page 1 of 1

Hallsten, Greg

From: tex and dianna crawford [texdi@tetonwireless.net]
Posted At: Monday, April 30, 2007 9:54 PM
Conversation: power line
Posted To: MATL
Subject: power line

Comments 388 through 391

388 I'm a third generation farmer with the fourth generation involved on this farm. I'm concerned with the type of poles and the line crossing farm ground on an angle. I think that the structures should be single pole and the line going down the edge of a field or paralleling for less impact on agricultural land. The implements that we are now using
389 are 60 to 70 feet wide and sprayers are 100 to 130 feet wide. How big is this equipment going to be 20 years from now? The impact of time and cost to the producer to go around these poles and not to mention the extra
390 inputs (chemicals, fertilizer, etc). I also have questions on the use of GPS as we are using this now on every trip across the field. Fertilizing, seeding, spraying, guidance and combine all have a GPS receiver and computer to
391 log the application and data. All of this could or might be affected every time we cross under or drive next to it. This power line is forever!

Ted, Rubye, Tex, Dianna and Cory Crawford
Crawford Farms Inc.

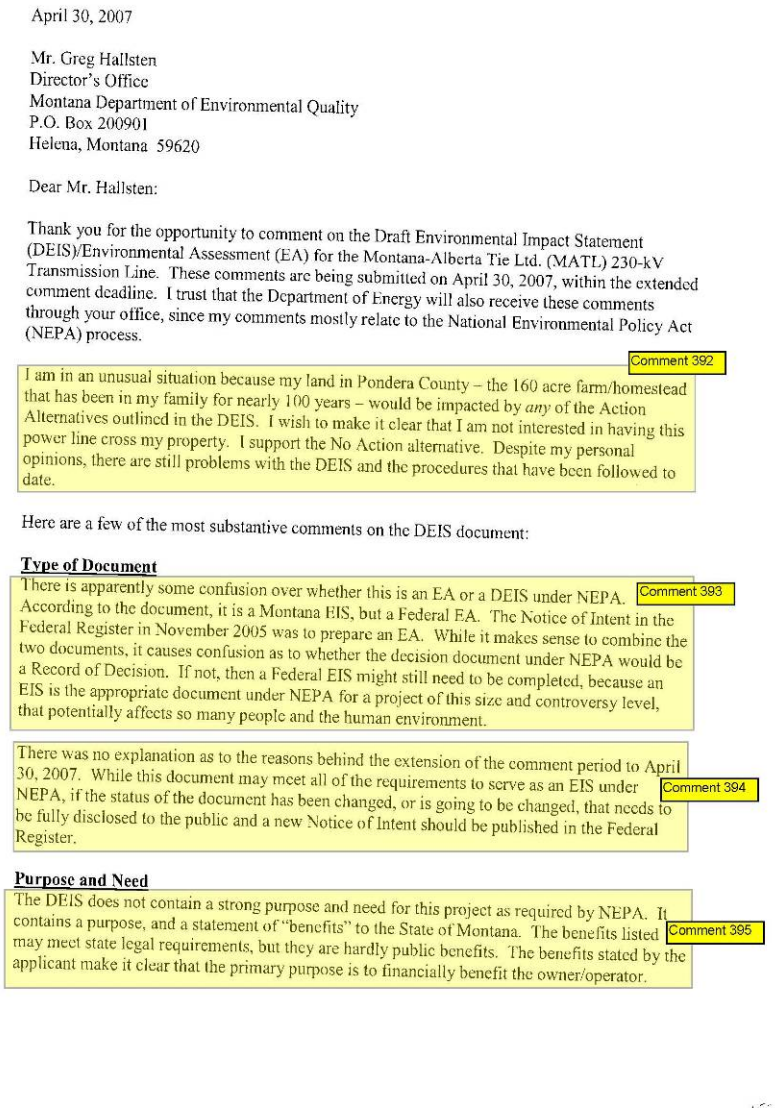
5/1/2007

Response 388: Comment noted.

Response 389: The agencies recognize the trend of increasing size of farming implements but cannot predict with much accuracy future equipment sizes.

Response 390: The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 391: See the revised discussion of potential impacts to GPS reception as a result of line construction in response to comment 599 and the discussion of impacts in sections 3.1 and 3.4.



April 30, 2007

Mr. Greg Hallsten
Director's Office
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620

Dear Mr. Hallsten:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS)/Environmental Assessment (EA) for the Montana-Alberta Tie Ltd. (MATL) 230-kV Transmission Line. These comments are being submitted on April 30, 2007, within the extended comment deadline. I trust that the Department of Energy will also receive these comments through your office, since my comments mostly relate to the National Environmental Policy Act (NEPA) process.

Comment 392

I am in an unusual situation because my land in Pondera County – the 160 acre farm/homestead that has been in my family for nearly 100 years – would be impacted by *any* of the Action Alternatives outlined in the DEIS. I wish to make it clear that I am not interested in having this power line cross my property. I support the No Action alternative. Despite my personal opinions, there are still problems with the DEIS and the procedures that have been followed to date.

Here are a few of the most substantive comments on the DEIS document:

Type of Document

Comment 393

There is apparently some confusion over whether this is an EA or a DEIS under NEPA. According to the document, it is a Montana EIS, but a Federal EA. The Notice of Intent in the Federal Register in November 2005 was to prepare an EA. While it makes sense to combine the two documents, it causes confusion as to whether the decision document under NEPA would be a Record of Decision. If not, then a Federal EIS might still need to be completed, because an EIS is the appropriate document under NEPA for a project of this size and controversy level, that potentially affects so many people and the human environment.

Comment 394

There was no explanation as to the reasons behind the extension of the comment period to April 30, 2007. While this document may meet all of the requirements to serve as an EIS under NEPA, if the status of the document has been changed, or is going to be changed, that needs to be fully disclosed to the public and a new Notice of Intent should be published in the Federal Register.

Purpose and Need

Comment 395

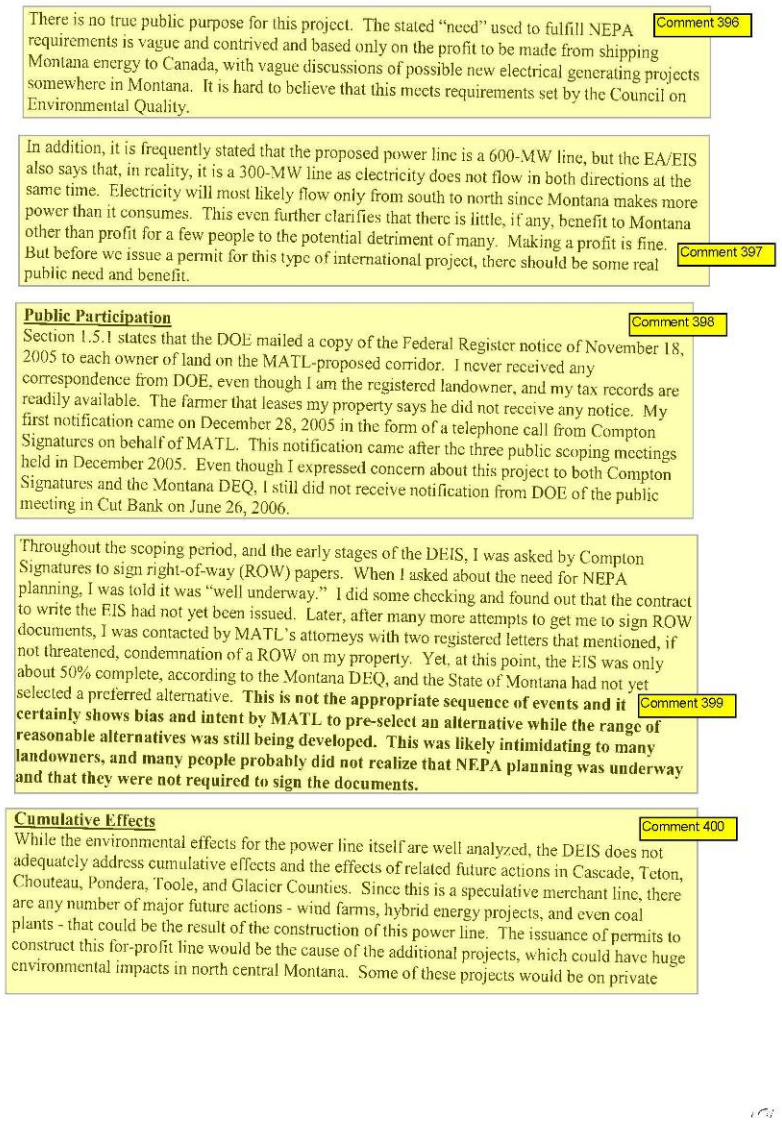
The DEIS does not contain a strong purpose and need for this project as required by NEPA. It contains a purpose, and a statement of "benefits" to the State of Montana. The benefits listed may meet state legal requirements, but they are hardly public benefits. The benefits stated by the applicant make it clear that the primary purpose is to financially benefit the owner/operator.

Response 392: Comment noted.

Response 393: Based in part on comments received on the joint March 2007 document, DOE has decided to prepare this EIS. To clarify, this document is a Federal draft EIS and State supplemental draft EIS published jointly by the DEQ and DOE.

Response 394: DOE published a Notice of Intent to Prepare an Environmental Impact Statement in the Federal Register on June 7, 2007 (72 FR 31569).

Response 395: An expanded discussion of DOE's purpose and need and the criteria used by DOE in granting or denying a Presidential permit is provided in Chapter 1.



There is no true public purpose for this project. The stated "need" used to fulfill NEPA requirements is vague and contrived and based only on the profit to be made from shipping Montana energy to Canada, with vague discussions of possible new electrical generating projects somewhere in Montana. It is hard to believe that this meets requirements set by the Council on Environmental Quality. Comment 396

In addition, it is frequently stated that the proposed power line is a 600-MW line, but the EA/EIS also says that, in reality, it is a 300-MW line as electricity does not flow in both directions at the same time. Electricity will most likely flow only from south to north since Montana makes more power than it consumes. This even further clarifies that there is little, if any, benefit to Montana other than profit for a few people to the potential detriment of many. Making a profit is fine. But before we issue a permit for this type of international project, there should be some real public need and benefit. Comment 397

Public Participation Comment 398

Section 1.5.1 states that the DOE mailed a copy of the Federal Register notice of November 18, 2005 to each owner of land on the MATL-proposed corridor. I never received any correspondence from DOE, even though I am the registered landowner, and my tax records are readily available. The farmer that leases my property says he did not receive any notice. My first notification came on December 28, 2005 in the form of a telephone call from Compton Signatures on behalf of MATL. This notification came after the three public scoping meetings held in December 2005. Even though I expressed concern about this project to both Compton Signatures and the Montana DEQ, I still did not receive notification from DOE of the public meeting in Cut Bank on June 26, 2006.

Throughout the scoping period, and the early stages of the DEIS, I was asked by Compton Signatures to sign right-of-way (ROW) papers. When I asked about the need for NEPA planning, I was told it was "well underway." I did some checking and found out that the contract to write the EIS had not yet been issued. Later, after many more attempts to get me to sign ROW documents, I was contacted by MATL's attorneys with two registered letters that mentioned, if not threatened, condemnation of a ROW on my property. Yet, at this point, the EIS was only about 50% complete, according to the Montana DEQ, and the State of Montana had not yet selected a preferred alternative. **This is not the appropriate sequence of events and it certainly shows bias and intent by MATL to pre-select an alternative while the range of reasonable alternatives was still being developed. This was likely intimidating to many landowners, and many people probably did not realize that NEPA planning was underway and that they were not required to sign the documents.** Comment 399

Cumulative Effects Comment 400

While the environmental effects for the power line itself are well analyzed, the DEIS does not adequately address cumulative effects and the effects of related future actions in Cascade, Teton, Chouteau, Pondera, Toole, and Glacier Counties. Since this is a speculative merchant line, there are any number of major future actions - wind farms, hybrid energy projects, and even coal plants - that could be the result of the construction of this power line. The issuance of permits to construct this for-profit line would be the cause of the additional projects, which could have huge environmental impacts in north central Montana. Some of these projects would be on private

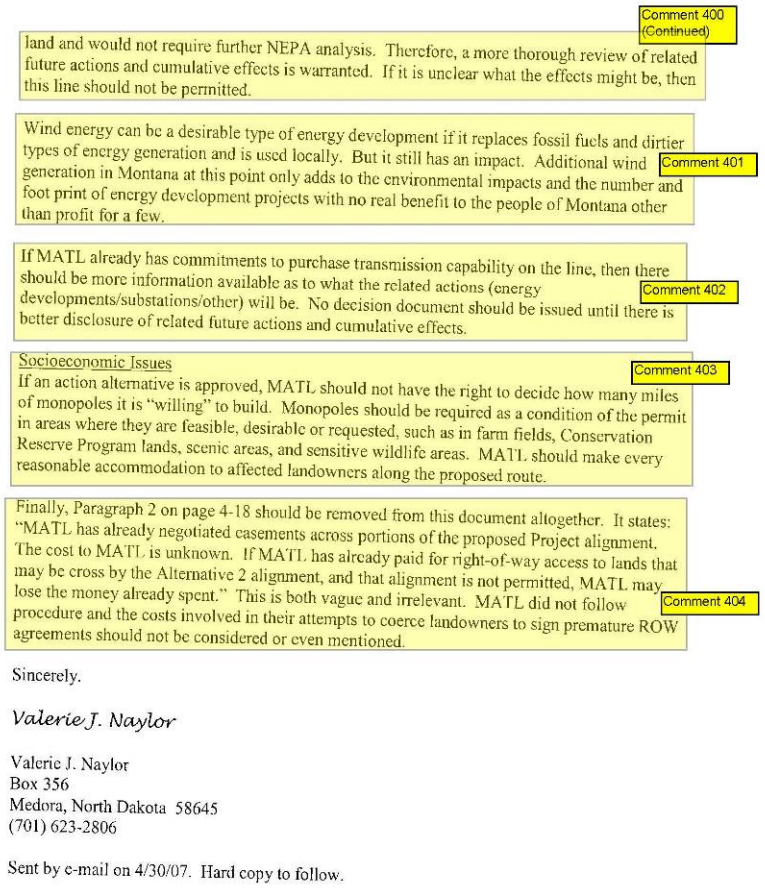
Response 396: As noted in response to comment 395, an expanded discussion of DOE's purpose and need and the criteria used by DOE in granting or denying a Presidential permit has been added to Section 1.2.

Response 397: As proposed the MATL line has a capacity of 300 MW in both directions. Also see response to comment 346 for further discussion of line capacity. Public need and benefits are discussed in sections 1.2 and 3.13 of this document.

Response 398: The commenter's property may have been inadvertently omitted from the original public notification in December 2005. DOE directly mailed the commenter a copy of the June 7, 2007, Notice of Intent to prepare this EIS and to conduct public scoping and will retain her address on the mailing list for all future notifications on this project.

Response 399: Comment noted. MATL is not prohibited from seeking easements in advance of obtaining approval from DEQ.

Response 400: See the revised discussion of cumulative impacts in Chapter 4 and responses to comments 93b, 216, and 283. The agencies have assumed that wind farms are reasonably foreseeable as a result of construction of the transmission line, but it is not possible to anticipate any other form of energy development. Many of the generation projects referred to by the commenter are not yet well defined; however, DOE has determined their probability of development to be reasonably foreseeable and they are therefore considered in the cumulative effects section. The agencies are not aware of future potential plans for energy development projects that would be dependent upon the MATL line.



land and would not require further NEPA analysis. Therefore, a more thorough review of related future actions and cumulative effects is warranted. If it is unclear what the effects might be, then this line should not be permitted.

Comment 400 (Continued)

Wind energy can be a desirable type of energy development if it replaces fossil fuels and dirtier types of energy generation and is used locally. But it still has an impact. Additional wind generation in Montana at this point only adds to the environmental impacts and the number and foot print of energy development projects with no real benefit to the people of Montana other than profit for a few.

Comment 401

If MATL already has commitments to purchase transmission capability on the line, then there should be more information available as to what the related actions (energy developments/substations/other) will be. No decision document should be issued until there is better disclosure of related future actions and cumulative effects.

Comment 402

Socioeconomic Issues

If an action alternative is approved, MATL should not have the right to decide how many miles of monopoles it is "willing" to build. Monopoles should be required as a condition of the permit in areas where they are feasible, desirable or requested, such as in farm fields, Conservation Reserve Program lands, scenic areas, and sensitive wildlife areas. MATL should make every reasonable accommodation to affected landowners along the proposed route.

Comment 403

Finally, Paragraph 2 on page 4-18 should be removed from this document altogether. It states: "MATL has already negotiated easements across portions of the proposed Project alignment. The cost to MATL is unknown. If MATL has already paid for right-of-way access to lands that may be cross by the Alternative 2 alignment, and that alignment is not permitted, MATL may lose the money already spent." This is both vague and irrelevant. MATL did not follow procedure and the costs involved in their attempts to coerce landowners to sign premature ROW agreements should not be considered or even mentioned.

Comment 404

Sincerely.

Valerie J. Naylor

Valerie J. Naylor
Box 356
Medora, North Dakota 58645
(701) 623-2806

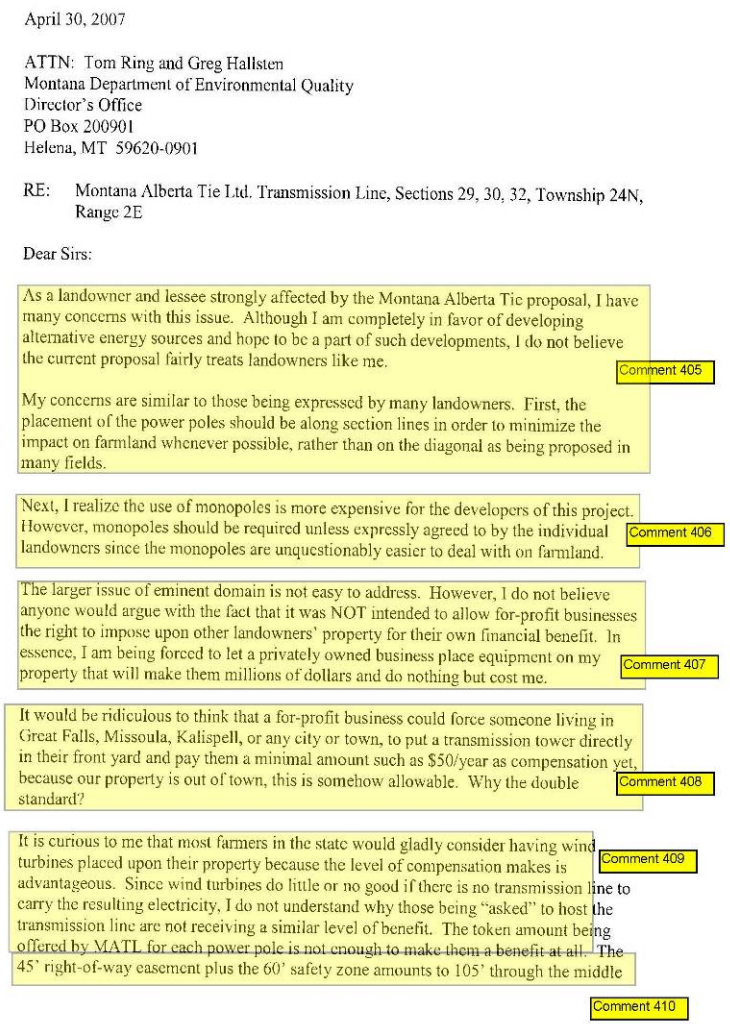
Sent by e-mail on 4/30/07. Hard copy to follow.

Response 401: Comment noted.

Response 402: Although the capacity of the proposed transmission line has been fully subscribed, there is a degree of uncertainty regarding the exact design and location of energy projects that would connect to the proposed line. Chapter 4 contains a discussion of the general impacts associated with wind farm development and operation.

Response 403: Comment noted.

Response 404: Comment noted. The statement in Section 4.5 of the March 2007 document (now in Section 4.20), is simply a statement of fact of the regulatory restrictions analysis required by the Montana Environmental Policy Act. The legal requirement to disclose the regulatory impact on the applicant's private property rights applies only to the applicant and not to other people who might be affected by the permitting action. This is a matter of law, not DEQ's choice. The cost to the applicant may be a factor in the permitting decision, but it is not the only factor. MATL is not prohibited from seeking easements in advance of obtaining approval from DEQ.



April 30, 2007

ATTN: Tom Ring and Greg Hallsten
Montana Department of Environmental Quality
Director's Office
PO Box 200901
Helena, MT 59620-0901

RE: Montana Alberta Tie Ltd. Transmission Line, Sections 29, 30, 32, Township 24N, Range 2E

Dear Sirs:

As a landowner and lessee strongly affected by the Montana Alberta Tie proposal, I have many concerns with this issue. Although I am completely in favor of developing alternative energy sources and hope to be a part of such developments, I do not believe the current proposal fairly treats landowners like me. Comment 405

My concerns are similar to those being expressed by many landowners. First, the placement of the power poles should be along section lines in order to minimize the impact on farmland whenever possible, rather than on the diagonal as being proposed in many fields.

Next, I realize the use of monopoles is more expensive for the developers of this project. However, monopoles should be required unless expressly agreed to by the individual landowners since the monopoles are unquestionably easier to deal with on farmland. Comment 406

The larger issue of eminent domain is not easy to address. However, I do not believe anyone would argue with the fact that it was NOT intended to allow for-profit businesses the right to impose upon other landowners' property for their own financial benefit. In essence, I am being forced to let a privately owned business place equipment on my property that will make them millions of dollars and do nothing but cost me. Comment 407

It would be ridiculous to think that a for-profit business could force someone living in Great Falls, Missoula, Kalispell, or any city or town, to put a transmission tower directly in their front yard and pay them a minimal amount such as $50/year as compensation yet, because our property is out of town, this is somehow allowable. Why the double standard? Comment 408

It is curious to me that most farmers in the state would gladly consider having wind turbines placed upon their property because the level of compensation makes is advantageous. Since wind turbines do little or no good if there is no transmission line to carry the resulting electricity, I do not understand why those being "asked" to host the transmission line are not receiving a similar level of benefit. The token amount being offered by MATL for each power pole is not enough to make them a benefit at all. The 45' right-of-way easement plus the 60' safety zone amounts to 105' through the middle Comment 409 Comment 410

Response 405: Comment noted.

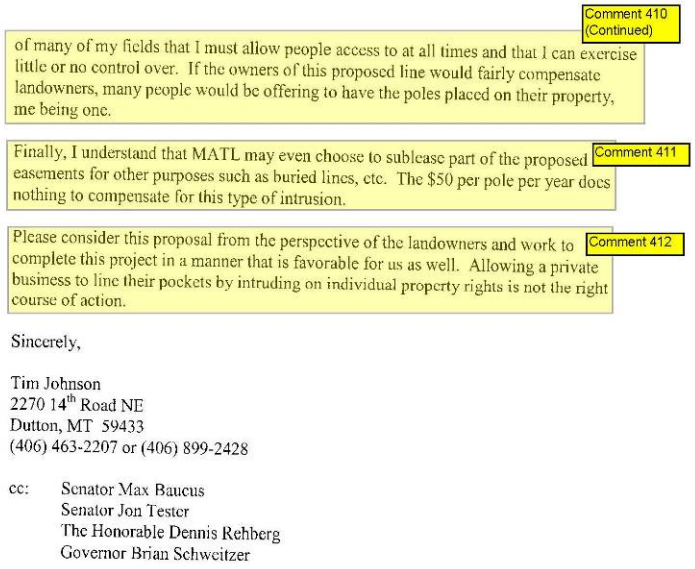
Response 406: Comment noted.

Response 407: See response to comment 8.

Response 408: Comment noted. See response to comment 8.

Response 409: Comment noted. This EIS does not deal with compensation to farmers from wind farms. See Chapters 3 and 4 for discussions of the impacts to the local area from wind farms. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 410: Comment noted.



Comment 410 (Continued)

of many of my fields that I must allow people access to at all times and that I can exercise little or no control over. If the owners of this proposed line would fairly compensate landowners, many people would be offering to have the poles placed on their property, me being one.

Comment 411

Finally, I understand that MATL may even choose to sublease part of the proposed easements for other purposes such as buried lines, etc. The $50 per pole per year does nothing to compensate for this type of intrusion.

Comment 412

Please consider this proposal from the perspective of the landowners and work to complete this project in a manner that is favorable for us as well. Allowing a private business to line their pockets by intruding on individual property rights is not the right course of action.

Sincerely,

Tim Johnson
2270 14th Road NE
Dutton, MT 59433
(406) 463-2207 or (406) 899-2428

cc: Senator Max Baucus
Senator Jon Tester
The Honorable Dennis Rehberg
Governor Brian Schweitzer

Response 411: MATL's proposal does not include subleasing the easement for buried lines.

Response 412: Comment noted.

Hallsten, Greg

From: Brace_Hayden@nps.gov
Posted At: Monday, April 30, 2007 4:55 PM
Conversation: Draft EIS for the proposed MATL transmission line
Posted To: MATL

Subject: Draft EIS for the proposed MATL transmission line



MATL EIS comments - Glacier Na...

Attn: Greg Hallsten
Montana Dept of Environmetal Quality

Attached are Glacier National Park's comments on the Draft EIS for the proposed MATL transmission line. A hard copy of these comments were mailed today

(See attached file: MATL EIS comments - Glacier National Park.doc)

Brace Hayden
Regional Issues Specialist
Glacier National Park
West Glacier MT 59936
(406) 888-7913
brace_hayden@nps.gov

1

(note a signed copy of this letter on park letterhead mailed on August 30, 2007)

April 30, 2007

Montana Department of Environmental Quality
Director's Office
PO Box 200901
Helena, MT 59620-0901
Attn: Greg Hallsten

Re: Draft EIS for the proposed Montana Alberta Tie Ltd Transmission Line (MATL)

Dear Mr. Hallsten,

Glacier National Park has reviewed the Draft EIS for the proposed MATL transmission line and clearly understands that one of the benefits of this line would be alternative energy production in the form of wind farms on lands east of the park's boundary. We are supportive of alternative energy development, including wind energy, as a national goal.

While construction of the proposed line would have little, if any, direct impacts upon Glacier National Park, we strongly recommend that the final EIS provide more detailed evaluation of the lines cumulative impacts including wind farm development. The description of impacts to migrating raptors and other wildlife found in chapter 4 is cursory and should be expanded upon to include a description of the anticipated severity of wind farm impacts and the ways in which such impacts could be mitigated.

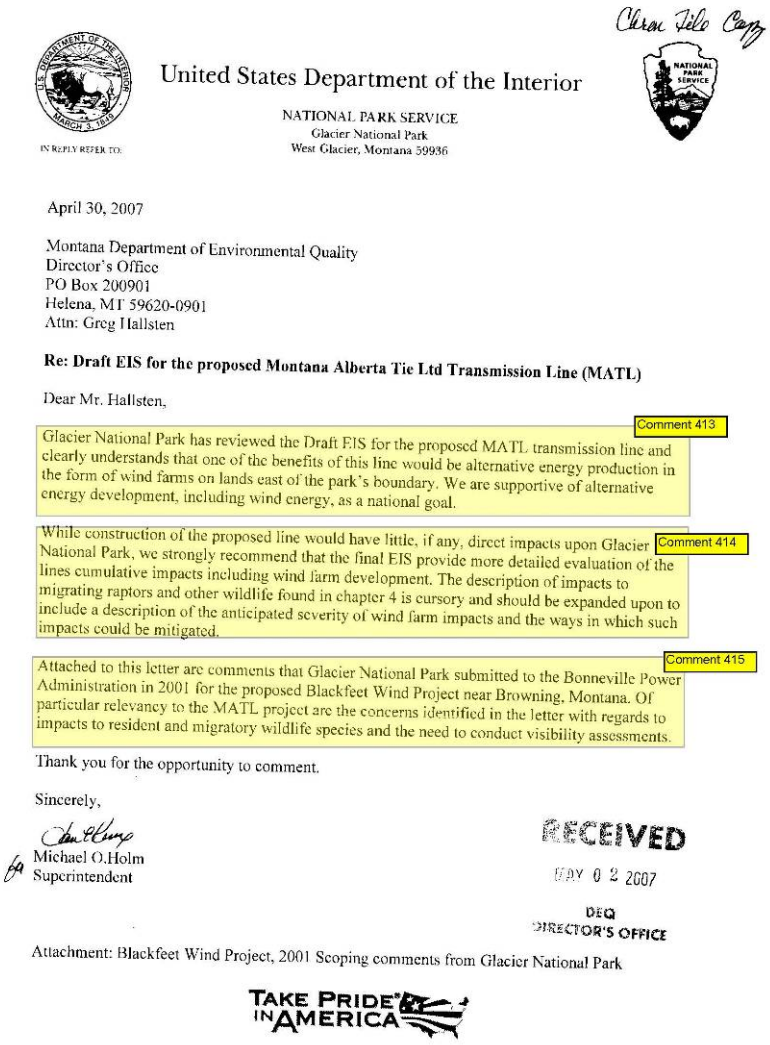
Attached to this letter are comments that Glacier National Park submitted to the Bonneville Power Administration in 2001 for the proposed Blackfeet Wind Project near Browning, Montana. Of particular relevancy to the MATL project are the concerns identified in the letter with regards to impacts to resident and migratory wildlife species and the need to conduct visibility assessments.

Thank you for the opportunity to comment.

Sincerely,

Michael O.Holm
Superintendent

Attachment: Blackfeet Wind Project, 2001 Scoping comments from Glacier National Park



United States Department of the Interior

NATIONAL PARK SERVICE
Glacier National Park
West Glacier, Montana 59936

IN REPLY REFER TO:

April 30, 2007

Montana Department of Environmental Quality
Director's Office
PO Box 200901
Helena, MT 59620-0901
Attn: Greg Hallsten

Re: Draft EIS for the proposed Montana Alberta Tie Ltd Transmission Line (MATL)

Dear Mr. Hallsten,

Comment 413

Glacier National Park has reviewed the Draft EIS for the proposed MATL transmission line and clearly understands that one of the benefits of this line would be alternative energy production in the form of wind farms on lands east of the park's boundary. We are supportive of alternative energy development, including wind energy, as a national goal.

Comment 414

While construction of the proposed line would have little, if any, direct impacts upon Glacier National Park, we strongly recommend that the final EIS provide more detailed evaluation of the lines cumulative impacts including wind farm development. The description of impacts to migrating raptors and other wildlife found in chapter 4 is cursory and should be expanded upon to include a description of the anticipated severity of wind farm impacts and the ways in which such impacts could be mitigated.

Comment 415

Attached to this letter are comments that Glacier National Park submitted to the Bonneville Power Administration in 2001 for the proposed Blackfeet Wind Project near Browning, Montana. Of particular relevancy to the MATL project are the concerns identified in the letter with regards to impacts to resident and migratory wildlife species and the need to conduct visibility assessments.

Thank you for the opportunity to comment.

Sincerely,

Michael O.Holm
Superintendent

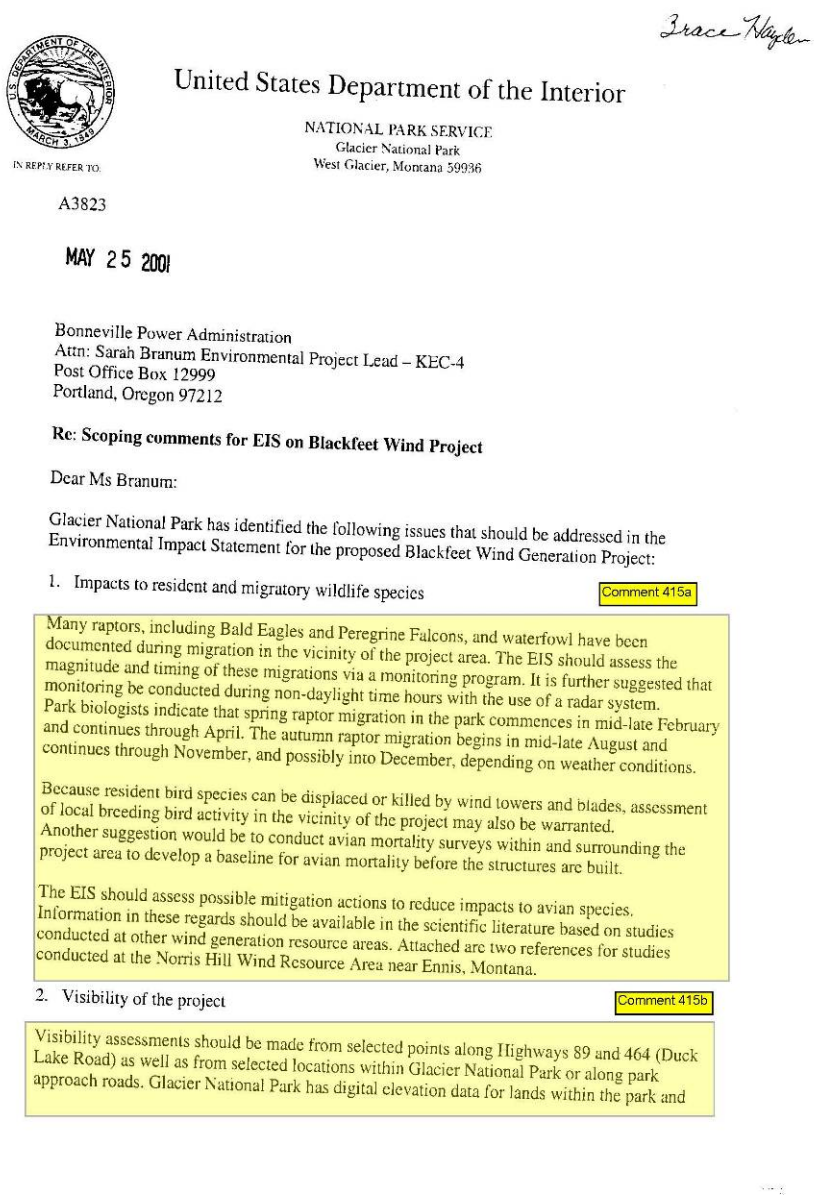
RECEIVED
MAY 0 2 2007
DEQ
DIRECTOR'S OFFICE

Attachment: Blackfeet Wind Project, 2001 Scoping comments from Glacier National Park

TAKE PRIDE IN AMERICA

Response 413: Comment noted.

Response 414: See the revised discussion of cumulative impacts in Chapter 4 and the response to comment 20. The impacts of wind farm development on wildlife are also described in Chapter 4. No wind farm monitoring program is proposed as a result of the agency actions proposed.



Grace Naylor

United States Department of the Interior

NATIONAL PARK SERVICE
Glacier National Park
West Glacier, Montana 59936

IN REPLY REFER TO:

A3823

MAY 25 2001

Bonneville Power Administration
Attn: Sarah Branum Environmental Project Lead – KEC-4
Post Office Box 12999
Portland, Oregon 97212

Re: Scoping comments for EIS on Blackfeet Wind Project

Dear Ms Branum:

Glacier National Park has identified the following issues that should be addressed in the Environmental Impact Statement for the proposed Blackfeet Wind Generation Project:

1. Impacts to resident and migratory wildlife species

Comment 415a

Many raptors, including Bald Eagles and Peregrine Falcons, and waterfowl have been documented during migration in the vicinity of the project area. The EIS should assess the magnitude and timing of these migrations via a monitoring program. It is further suggested that monitoring be conducted during non-daylight time hours with the use of a radar system. Park biologists indicate that spring raptor migration in the park commences in mid-late February and continues through April. The autumn raptor migration begins in mid-late August and continues through November, and possibly into December, depending on weather conditions.

Because resident bird species can be displaced or killed by wind towers and blades, assessment of local breeding bird activity in the vicinity of the project may also be warranted. Another suggestion would be to conduct avian mortality surveys within and surrounding the project area to develop a baseline for avian mortality before the structures are built.

The EIS should assess possible mitigation actions to reduce impacts to avian species. Information in these regards should be available in the scientific literature based on studies conducted at other wind generation resource areas. Attached are two references for studies conducted at the Norris Hill Wind Resource Area near Ennis, Montana.

2. Visibility of the project

Comment 415b

Visibility assessments should be made from selected points along Highways 89 and 464 (Duck Lake Road) as well as from selected locations within Glacier National Park or along park approach roads. Glacier National Park has digital elevation data for lands within the park and

Response 415: Comment noted. The letter written to BPA concerns a specific wind farm project proposed not far from the eastern border of Glacier National Park. It raises issues about potential impacts that might occur if the MATL line is constructed.

Response 415a: See the revised discussion of cumulative impacts in Chapter 4.

Response 415b: Visibility assessments are typically completed when detailed information is available for both viewer locations and project components. Although the comment identifies viewer locations (Highways 89 and 464 on the Blackfeet Reservation, locations within Glacier National Park, and along park approach roads), detailed information is lacking on the location and design of individual wind farms. Therefore, it is not possible to complete visibility assessments for most wind farms at this time.

A general location is known for the proposed McCormick Ranch wind farm, southeast of Cut Bank, north of the Marias River and east of the Sullivan Bridge Road. Applying the Sinclair-Thomas matrix to this wind farm, limits of visibility could be expected to extend up to 18 miles beyond the wind farm. Portions of this wind farm would be visible from viewpoints along US Highway 2 east of Cut Bank (4-6 miles distant) and potentially some portions of Highway 89 as it leaves the Blackfeet Reservation (15 miles distant), but visibility would not be expected to extend to more distant segments of Highway 89 or to Highway 464. Viewpoints within Glacier National Park more than 50 miles to the west would be beyond the range of visibility for the McCormick Ranch wind farm. Individual developers of wind farms could consider mitigation for turbine siting, height, or color as desired.

Response 415c: This comment refers to the wind farm being considered at that time and does not address the proposed transmission line.

Comment 415b (Continued)

similar information for the Blackfeet Indian Reservation should be available from the Blackfeet Tribe. Mitigation measures such as siting, height, and color of the towers should be considered.

3. Assessment of new transmission lines

The project description available at the BPA's recent Scoping Meeting states that power generated at the facility would travel 1-2 miles via underground line or overhead cables to a new 1-2 acre substation. The impacts of such related structures, including visibility, should also be evaluated in the EIS.

4. Importance of the project to the meeting energy needs and to protecting air quality.

Comment 415c

The EIS should discuss the project's role in meeting national electricity needs as well as the project's importance to the regional needs of BPA. Similarly, the EIS should discuss benefits of producing electricity by such clean sources as wind power. This is an especially important issue to Glacier National Park, which is classified as a Class 1 Air Quality Area under the Clean Air Act.

The principal park contacts for this project are Brace Hayden (406-888-7913) and Jack Potter (404-888-7821). Please feel free to contact them regarding any help you might need from the Glacier National Park's staff on this project.

Thank you for the opportunity to comment.

Sincerely,

Suzanne Lewis

Suzanne Lewis
Superintendent

Enclosure

Hallsten, Greg

From: Eric & Amanda Doheny [eadoheny@tetonwireless.net]
Posted At: Monday, April 30, 2007 4:31 PM
Conversation: power lines
Posted To: MATL
Subject: power lines

Comments 416 through 419

416 Hello I am a farmer from Dutton, Mt and have land near the Collins exit. We feel that this power line is a positive asset to the stat of MT, but since it is a for profit power line it should not be at the expense of the farmer. It is not
417 like the power line is coming in to help out a new community or to help farmers live on the land and allow a safe stable food supply for the U.S. it is being put in so people can make money. We do not like the idea of double H
418 poles angling across farm land. It should follow section lines and be single poles. Lastly, they are not making the power capacity large enough, I would like to see a power line large enough for a whole lot of expansion for
419 power and not have to see another private power line running across a farmers land in 10 years for some company to make money at our expense.

Eric Doheny
C&E Farms
2490 22nd lane NE
Dutton, Mt 59433

406-627-2286

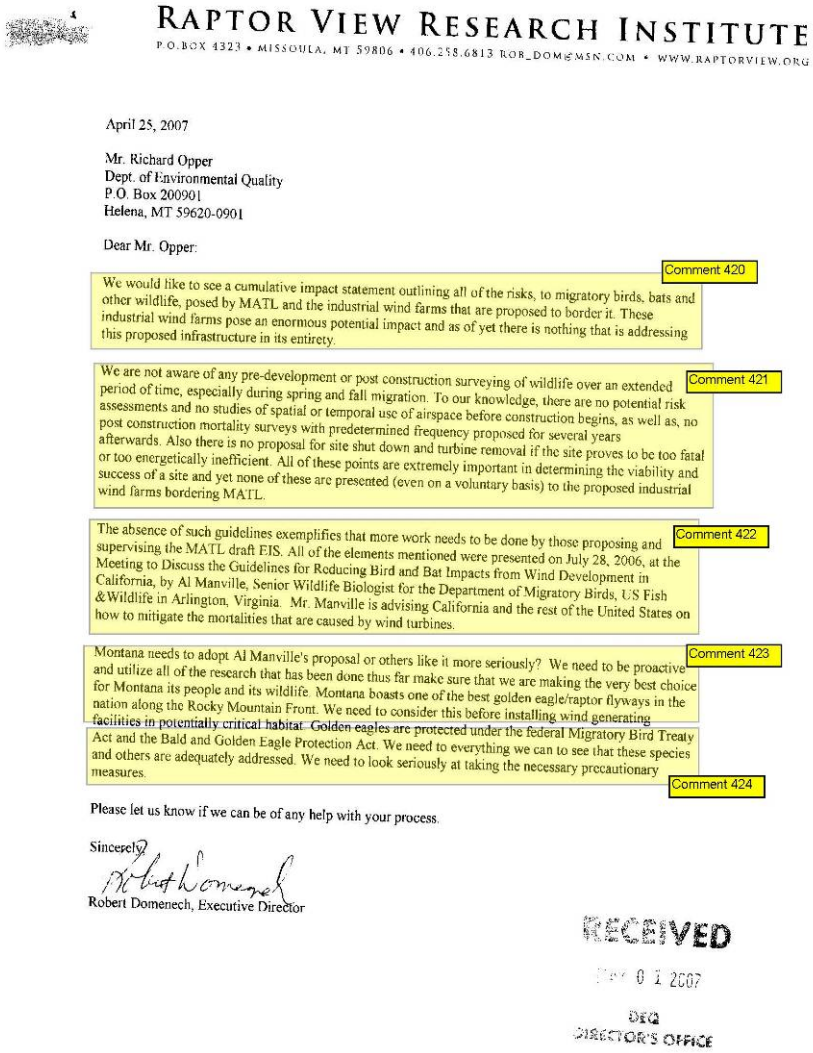
5/1/2007

Response 416: Comment noted.

Response 417: Comment noted.

Response 418: Comment noted.

Response 419: See response to comment 346.



RAPTOR VIEW RESEARCH INSTITUTE
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April 25, 2007

Mr. Richard Opper
Dept. of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Opper:

Comment 420

We would like to see a cumulative impact statement outlining all of the risks, to migratory birds, bats and other wildlife, posed by MATL and the industrial wind farms that are proposed to border it. These industrial wind farms pose an enormous potential impact and as of yet there is nothing that is addressing this proposed infrastructure in its entirety.

Comment 421

We are not aware of any pre-development or post construction surveying of wildlife over an extended period of time, especially during spring and fall migration. To our knowledge, there are no potential risk assessments and no studies of spatial or temporal use of airspace before construction begins, as well as, no post construction mortality surveys with predetermined frequency proposed for several years afterwards. Also there is no proposal for site shut down and turbine removal if the site proves to be too fatal or too energetically inefficient. All of these points are extremely important in determining the viability and success of a site and yet none of these are presented (even on a voluntary basis) to the proposed industrial wind farms bordering MATL.

Comment 422

The absence of such guidelines exemplifies that more work needs to be done by those proposing and supervising the MATL draft EIS. All of the elements mentioned were presented on July 28, 2006, at the Meeting to Discuss the Guidelines for Reducing Bird and Bat Impacts from Wind Development in California, by Al Manville, Senior Wildlife Biologist for the Department of Migratory Birds, US Fish &Wildlife in Arlington, Virginia. Mr. Manville is advising California and the rest of the United States on how to mitigate the mortalities that are caused by wind turbines.

Comment 423

Montana needs to adopt Al Manville's proposal or others like it more seriously? We need to be proactive and utilize all of the research that has been done thus far make sure that we are making the very best choice for Montana its people and its wildlife. Montana boasts one of the best golden eagle/raptor flyways in the nation along the Rocky Mountain Front. We need to consider this before installing wind generating facilities in potentially critical habitat. Golden eagles are protected under the federal Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. We need to everything we can to see that these species and others are adequately addressed. We need to look seriously at taking the necessary precautionary measures.

Comment 424

Please let us know if we can be of any help with your process.

Sincerely,

Robert Domenech, Executive Director

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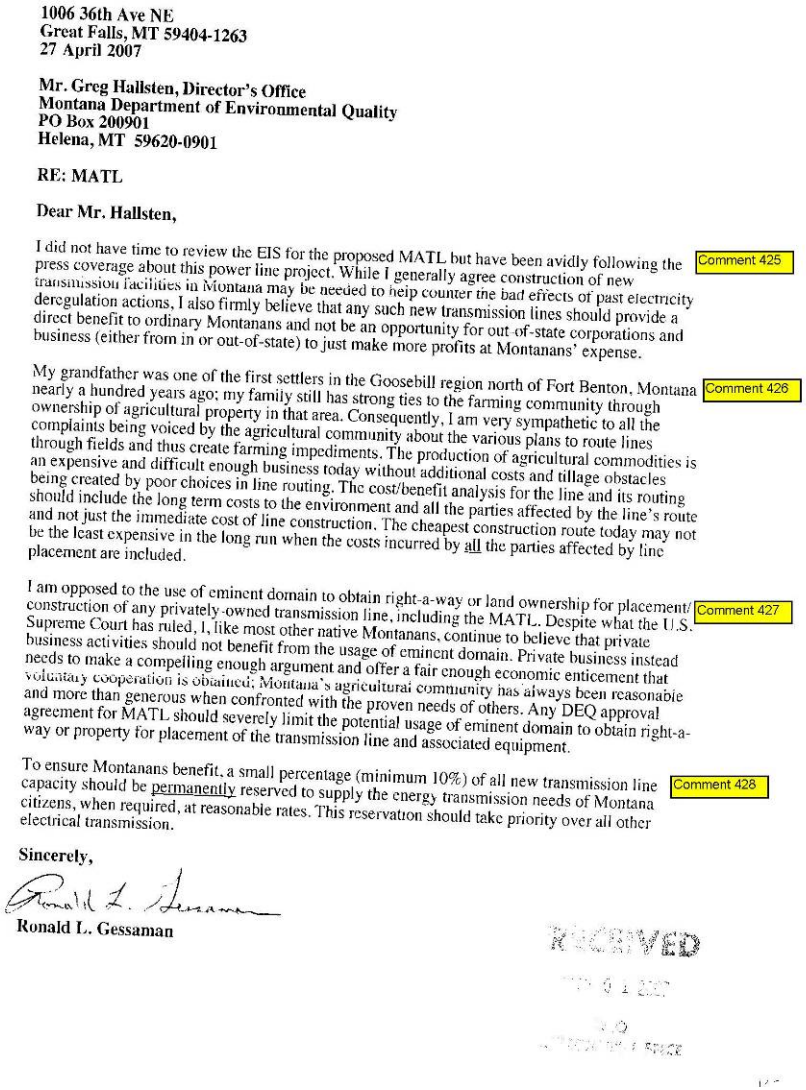
Response 420: See responses to comments 20 and 22 and the revised discussion of cumulative impacts in Chapter 4.

Response 421: Preliminary avian studies have been completed for the planned Naturener USA wind farm south of Ethridge and north of the Marias River. Invenergy plans on conducting recommended avian studies but is not yet far enough along in project development of two projects in the Conrad and Cut Bank areas to have completed such studies. The status of Wind Hunter's avian study is not known. See responses to comments 22 and 238 and the revised discussion of cumulative impacts in Chapter 4 for additional information.

Response 422: Potential mitigating measures to reduce impacts from wind farm development are indicated in the revised discussion of cumulative impacts in Chapter 4. and Appendix O. .

Response 423: See response to comment 239.

Response 424: Comment noted.



1006 36th Ave NE
Great Falls, MT 59404-1263
27 April 2007

Mr. Greg Hallsten, Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

RE: MATL

Dear Mr. Hallsten,

I did not have time to review the EIS for the proposed MATL but have been avidly following the press coverage about this power line project. While I generally agree construction of new transmission facilities in Montana may be needed to help counter the bad effects of past electricity deregulation actions, I also firmly believe that any such new transmission lines should provide a direct benefit to ordinary Montanans and not be an opportunity for out-of-state corporations and business (either from in or out-of-state) to just make more profits at Montanans' expense. Comment 425

My grandfather was one of the first settlers in the Goosebill region north of Fort Benton, Montana nearly a hundred years ago; my family still has strong ties to the farming community through ownership of agricultural property in that area. Consequently, I am very sympathetic to all the complaints being voiced by the agricultural community about the various plans to route lines through fields and thus create farming impediments. The production of agricultural commodities is an expensive and difficult enough business today without additional costs and tillage obstacles being created by poor choices in line routing. The cost/benefit analysis for the line and its routing should include the long term costs to the environment and all the parties affected by the line's route and not just the immediate cost of line construction. The cheapest construction route today may not be the least expensive in the long run when the costs incurred by all the parties affected by line placement are included. Comment 426

I am opposed to the use of eminent domain to obtain right-a-way or land ownership for placement/ construction of any privately-owned transmission line, including the MATL. Despite what the U.S. Supreme Court has ruled, I, like most other native Montanans, continue to believe that private business activities should not benefit from the usage of eminent domain. Private business instead needs to make a compelling enough argument and offer a fair enough economic enticement that voluntary cooperation is obtained; Montana's agricultural community has always been reasonable and more than generous when confronted with the proven needs of others. Any DEQ approval agreement for MATL should severely limit the potential usage of eminent domain to obtain right-a-way or property for placement of the transmission line and associated equipment. Comment 427

To ensure Montanans benefit, a small percentage (minimum 10%) of all new transmission line capacity should be permanently reserved to supply the energy transmission needs of Montana citizens, when required, at reasonable rates. This reservation should take priority over all other electrical transmission. Comment 428

Sincerely,

Ronald L. Gessaman

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Response 425: Comment noted.

Response 426: The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 427: Comment noted. See response to comment 8.

Response 428: See response to comment 334. There is no law requiring that a portion of transmission lines must supply the energy transmission needs of Montana citizens.

April 29, 2007

Dear Mr. Halisten:

I would like to submit these comments on the Draft EIS on the MATL transmission line.

First, I would like to acknowledge all the work and study that went into this document. The Agency listened to the concerns of the landowners and with Alternative 4 made a great effort to correct MATL's ill designed line. Comment 429

I am in favor of Alternative 4 (the Agency Alternative) as the best route. The Agency Alternative best addresses impacts for the landowners and interrupts least with current land uses. This alternative uses monopoles and eliminates much of the diagonal line. If MATL will build Alternative 4 (the Agency Alternative) then I am in favor of this project. If MATL will not build Alternative 4, then I am in favor of Alternative 1-NO Action. Comment 430

The DEQ has done its job and I can see no reason to set aside its' work product. Chapter 2 is a remarkable wealth of information and the Agency very clearly states why Alternative 4 is the best. Comment 431

I see very little factual reasoning in the Director's setting aside the Agency Alternative and adopting Alternative 2-the Proposed Action. The 24 miles of monopoles for mitigation is largely where MATL lacks easements. We are not fooled that this in not a political decision. MATL has said they have been in continuing discussion with the Governor's office and the Proposed Action makes that very clear. Comment 432

It is not a coincidence that the discontent with this line begins when it hits Conrad and starts its diagonal crossing of farm ground. North of Conrad and in Canada the line is mostly north-south and on section lines. If this line had been designed that way south of Conrad, the farmer's would have grumbled, but they wouldn't have opposed it like we are now. Comment 433

MATL started this process by choosing the oldest corridor in this area. They chose a power line that hadn't had an EIS done or met any modern design concerns or land impacts. MATL chose this over the WAPA line an example. The WAPA did go through a modern EIS and was changed from a diagonal line to a mostly north-south line running on field borders and section lines. MATL's only concern is cost. Comment 434

MATL's application was completed at the same time as the Draft EIS was completed. A complete and proper application wasn't available to the public before the DEQ started on the EIS. This lack of a complete application has hindered the public from being able to properly review the validity of the costs that MATL is presenting to the DEQ. Comment 435

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DEQ
DIRECTOR'S OFFICE

Response 429: Comment noted.

Response 430: Comment noted.

Response 431: Comment noted.

Response 432: Comment noted. The areas where monopoles were recommended were selected based on reducing impacts, not with regard to the status of easements. During preparation of this document MATL committed to use of monopoles on 53 miles of line that would cross farmland diagonally (MATL 2007).

Response 433: Comment noted.

Response 434: Comment noted.

Response 435: The estimated cost per mile of construction of the transmission line using H-frame and long-span monopole structures is presented in Table 2.3-1.

The DEQ, throughout this document, cites MATL as the sole source for many of the figures the Agency uses to make important determinations, but the EIS provides no foundation or outside sources as to the veracity of these figures. A Mr. Nolan, who works for an electrical cooperative, at the Conrad comment meeting, raised doubts as to the pricing of the monopoles saying that they don't always cost more than double-H frames. This is important because the Alternate Preferred route is primarily chosen over Alternative 4 because MATL says it can't afford the approximately $5,000,000 that this Alternative will cost. Comment 436

The Draft EIS does not meet the requirements of the Montana Major Facilities Siting Act. While the Draft EIS examines the costs of building this line in great detail for all routes it is totally devoid of the other side of the equation. The law requires the DEQ to figure out the "net present value of costs" to the landowner. Where is this determination? This EIS does cannot meet the standard the law requires until this analysis is done! Comment 437

The EIS examines thru documents and in photos (Chapter 2) the impacts of farming around poles and the differences between H-frames and monopoles, but there is a total lack of comparison between the value of the additional costs to the farmer on H-frames verses the cost for MATL to use monopoles. When you take these annual costs and project them into the future for the lifetime of this line, the addition costs to MATL vs. farming around H-frames the equation equalizes or falls on the side of the farmer. Comment 438

The DEQ should ask the Montana State Ag College to see if they can help determine this cost comparison of what the annual addition costs are associated to farming around poles. Comment 439

At the Conrad comment meeting Tom Ring stated that they couldn't find any current analysis for costs of farming around structures. Ag Canada, in January 2005, did a study about "Midfield Structures" and the increase in farming around them. I will include a copy of this with these comments. Also, I will submit another done my neighbor Brent McDonald. The original proposed line went thru his place. Alan Denzer , over a year ago, submitted his costs to the DEQ and to MATL. These all vary, but they are all substantially larger than the proposed mitigation MATL is offering. These costs and restrictions will only get worse as the time passes. Comment 440

Modern farming techniques and opportunities will be unavailable on the land where this line in built. There is no way to tell the future, but the ability to make a profit in farming as in all businesses is with the opportunity to adopt new practices as they are become available. This line and these poles to a large degree make this impossible. Comment 441

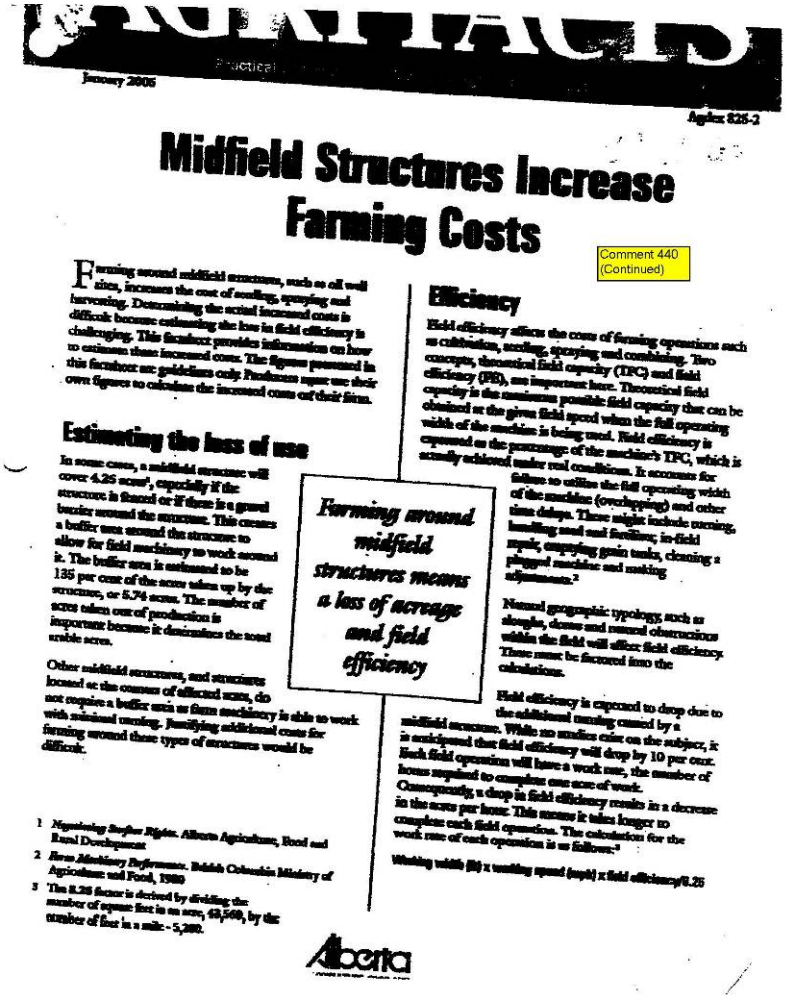
The inability to properly apply farm chemicals around these poles at the proper application rate currently prohibits certain crops from being grown around these structures. I will include chemical labels and the rotation period with these comments. Over application, which is unavoidable when you farm around these poles, causes the rotation period to lengthen and in some instances make certain crops not able to grown around these poles at all. Comment 442

Response 436: See response to comment 358 and Table 2.3-1.

Response 437: See the revised discussion of potential costs of farming around structures and a comparison of cost to farm around structures to the additional costs of Alternative 4 in Section 3.13.

Response 438: DEQ has worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 439: DEQ retained the services of an agronomist and an engineer to independently examine the increased costs of farming around transmission line structures. Farming cost estimates provided by MATL and two commentors on the draft EIS were reviewed. The results of this review are presented in 3.13.



January 2005

Agdex 825-2

Midfield Structures Increase Farming Costs

Comment 440 (Continued)

Farming around midfield structures, such as oil well sites, increases the cost of seeding, spraying and harvesting. Determining the actual increased costs is difficult because estimating the loss in field efficiency is challenging. This factsheet provides information on how to estimate these increased costs. The figures presented in this factsheet are guidelines only. Producers input their own figures to calculate the increased costs on their farm.

Estimating the loss of use

In some cases, a midfield structure will cover 4.25 acres[1], especially if the structure is fenced or if there is a guard barrier around the structure. This creates a buffer area around the structure to allow for field machinery to work around it. The buffer area is estimated to be 135 per cent of the acres taken up by the structure, or 5.74 acres. The number of acres taken out of production is important because it determines the total arable acres.

Farming around midfield structures means a loss of acreage and field efficiency

Other midfield structures, and structures located at the corners of affected areas, do not require a buffer area as farm machinery is able to work with minimal turning. Justifying additional costs for farming around these types of structures would be difficult.

1 *Negotiating Surface Rights*. Alberta Agriculture, Food and Rural Development

2 *Farm Machinery Performance*. Bulletin Columbia Ministry of Agriculture and Food, 1980

3 The 8.25 factor is derived by dividing the number of square feet in an acre, 43,560, by the number of feet in a mile - 5,280.

Efficiency

Field efficiency affects the costs of farming operations such as cultivation, seeding, spraying and combining. Two concepts, theoretical field capacity (TFC) and field efficiency (FE), are important here. Theoretical field capacity is the maximum possible field capacity that can be obtained at the given field speed when the full operating width of the machine is being used. Field efficiency is expressed as the percentage of the machine's TFC, which is actually achieved under real conditions. It accounts for failure to utilize the full operating width of the machine (overlapping) and other time delays. These might include turning, handling seed and fertilizer, in-field repair, emptying grain tanks, cleaning a plugged machine and making adjustments.[2]

Natural geographic typology such as sloughs, dunes and natural obstructions within the field will affect field efficiency. These must be factored into the calculations.

Field efficiency is expected to drop due to the additional turning caused by a midfield structure. While no studies exist on the subject, it is anticipated that field efficiency will drop by 10 per cent. Each field operation will have a work rate, the number of hours required to complete one acre of work. Consequently, a drop in field efficiency results in a decrease in the acres per hour. This means it takes longer to complete each field operation. The calculation for the work rate of each operation is as follows:[3]

Working width (ft) x working speed (mph) x field efficiency/8.25

Estimating increased farming costs

There are two separate calculations that must be performed. The first is the total cost prior to harvest. The second is the harvest costs. According to information provided by the Surface Rights Board, harvest rates are reduced by 50 per cent. In addition, a report prepared by Robert Berries for the Surface Rights Board concluded that farming costs increase by 150 per cent when a midfield structure is in place. In our example, the increased farming costs would be as follows:

	Variable costs
	per acre
Sub total before harvest	$40.00
Harvest rate @ 50%	$8.97
Total	$57.77
Factored	150%
Increased farming costs	$35.85

Costs of farming around a midfield structure

Once the increased farming cost per acre is known, the total increased farming cost can be calculated. The number of arable acres should account for sloughs, dunes, trees and other obstructions, as well as the acres lost with the midfield structure. Our example assumes a full quarter section with no obstructions except for the midfield structure:

	Variable costs
Arable acres	160
Less midfield structure	5.74
Total arable acres	154.26
Total increased farming costs	$4,111

Conclusion

The additional cost of farming around a midfield structure is dependent on the additional time required to manoeuver around the structure. This reduces the field efficiency and increases costs. In this analysis, a 10 per cent decrease in field efficiency is assumed. Additional studies are needed to measure these factors to provide conclusive cost estimates.

Prepared by:
Dean Dyck, P. Ag.
Financial Business Analyst
Alberta Agriculture, Food and Rural Development
Red Deer

Funding provided by:
Canada
The Agricultural Policy Framework (APF)
An Agricultural Policy for the 21st Century
A FEDERAL-PROVINCIAL-TERRITORIAL INITIATIVE
Alberta

Comment 440 (Continued)

3

Response 440: See responses to comments 437 and 439.

For example, the field efficiency for a 32 ft cultivator pulled by a 275 hp 4wd tractor at 5 1/2 miles per hour is normally 80 per cent, giving a calculated work rate of 17 acres per hour (32 x 5.5 x 80 = 140.8 ÷ 8.25 = 17.07). A 10 per cent drop in field efficiency to 72 per cent decreases the work rate to 15 acres per hour.

This would be completed for each field operation, as in the following example:

Comment 440 (Continued)

Operation	Working width	Working speed	Normal Field efficiency	Adjusted Field efficiency	Acres
	feet	mph			per hour
275 hp 4wd tractor					
Cultivator (32' wide)	32	5.5	80%	72%	15.30
Seeding/Int (40' air seeder)	40	4.5	80%	56%	11.76
Spraying (70' boom)	70	9.5	80%	54%	29.70
Seeding (20' SP)	20	5.5	70%	88%	12.88
Combine (30' SP)	30	2	70%	84%	6.57

Estimating expenses

There are two costs that must be covered in field operations. The first, variable costs, are those that can be varied in the short run. These include fuel, oil and repairs. The second, total costs, includes fixed costs which are paid even if production does not occur. These include depreciation, investment and insurance. These figures can be found in the *Farm Machinery Cost Guide*, published yearly by Alberta Agriculture, Food and Rural Development. When production occurs, variable costs are expected to be covered first. While it is desirable to cover fixed costs, it is unrealistic to expect compensatory payment for such costs.

For each field operation, variable costs and fixed costs per acre are calculated as follows:

- Add the variable costs per hour of the power unit and drawn implement
- Divide the total by the adjusted acres per hour

Using our field operations in the above example, the variable and fixed costs would be calculated as follows:

Operation	Power unit + Implement			
	per hour	$/hour	$/hour	$/acre
275 hp 4wd tractor		$40.84		
Cultivator (32' wide)	15.30	$0.38	$40.84	$3.34
Seeding/Int (40' air seeder)	11.76	$21.82	$40.84	$5.55
Spraying (70' boom)	29.70	$16.14	$40.84	$2.69
Seeding (20' SP)	12.88	$43.67		$3.78
Combine (30' SP)	6.57	$69.81		$10.16
Total				$30.74

Actual costs of farming around a double pole utility set

16.5 feet x 2640 ft. = 1 acre or 43560 square ft.

Spraying with a 120 ft sprayer: 160 ft. diameter circle (leaving 20 ft around poles) 160 x 3.1416 = 502 ft. x 1.5 = 753.9 linear ft.

120 ft./ 16.5 = 7.272727 acres/ 2640 ft. = .002755 acres per ft. x 753.9 ft = 2.0768 acres per pole set.

application costs: $3.75/ acre
chemical costs: $6.00/ acre (Roundup)
$9.75 x 2.0768 x 4 = $81.00 (4 applications of Roundup)

Comment 440 (Continued)

Maverick costs: $11.00/ acre + $3.75 app. = 14.75 x 2.0768 acres = $30.63
Total cost of going around a pole 1.5 times = $101.63
If we have to go around a pole an additional time to keep the GPS on track, it will be a 280 ft dia. or an additional 2.42 acres.
$9.75 x 4 x 2.42 = $94.38 (Roundup cost)
$14.75 x 2.42 = $35.70

Heavy harrowing with a 70 ft. tool: 90 ft. dia. (leaving 10 ft. around poles) 90 x 3.1416 = 282.75 ft. x 1.5 = 425 ft.
70/16.5 = 4.25 acres/ 2640 ft. = .001606978(acres per ft.) x 425 ft. = .683 acres at $ 10.00 = $ 6.83 per pole set.
An additional time around poles at 160 ft. dia = 502.66 ft. or .8 acres x $10.00 = $8.00

Seeding with a 60 ft air drill: 80 ft dia x 3.1416 = 251.328 x 1.5 = 377 linear ft.
60/16.5/2640 = .00137741 acre per ft. x 377 ft. = .52 acres
Fertilizer: $36.00/ acre
Seed $7.50 / acre
Application $12.00/ acre
total $ 55.50/ acre x .52 = $28.86 per pole set
An additional time around a pole set at 140 ft. dia. = .6058 acres x $55.50 = $33.62

Combining with a 36 ft. header: 82 ft. dia. x 3.1416 = 257.61 ft. x 1.5 = 386.42 ft.
36/16.5/2640 = .000826446 acres per ft. x 386.42 ft. = .32 acres
$20.00 per acre x .32 = $6.40
Additional costs will be incurred while other combines wait for 1 combine to clean up around a pole set. Also, combines need to be
run at capacity and will lose grain out the back of the machine when it is not fully loaded or comes to a stop according to the grain loss
monitor.

Approximately 2 acres around each pole set will have a reduction in yield do to over applied spray, fertilizer and compaction from the
additional traffic from the equipment. If the reduction is 30% on a 58 bushel per acre proven yield, the results are 17.4 bushels per acre.
17.4 x 2 acres x $4.00 per acre = $139.20 per pole set.

There are other factors that enter into farming around an above gound power line such as unlocking and locking the GPS autosteer
functions on the equipment when you come to a pole set. There is also difficulty getting back on the pass without the use of a foam marker.
Another will involve the option of arial (sp) spraying when there are two double poled power lines running in parrallel about 200 ft. apart.

brentm@scfast.net

Response 441: Comment noted.

Response 442: Comment noted. DEQ has worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Weed Spectrum

"A SIMPLE SOLUTION FOR YOUR HARD PROBLEMS"

Olympus™

Weeds Controlled	Scientific Name	Fall Application Rates		Spring Application Rates	
		0.6 oz/a	0.9 oz/a	0.6 oz/a	0.9 oz/a
Japanese brome[1]	*Bromus Japonicus*	C	C	C	C
Cheat (true cheatgrass)[2]	*Bromus secalinus*	C	C	C	C
Downy brome[3]	*Bromus tectorum*	S	C	S	S
Wild oat[4]	*Avena fatua*	S	C	S	C
Quackgrass	*Elytrigia repends*	S	S	S	S
Jointed goatgrass[5]	*Aegilops cylindrica*	-	S	-	S
Foxtail barley	*Hordeum pusillum*	C	C	C	C
Shepherspurse	*Capsella bursa-pastoris*	C	C	C	C
Field pennycress	*Thlaspi arvense*	C	C	C	C
Tumble mustard	*Sisymbrium altissimum*	C	C	C	C
Tansy mustard	*Descurania pinnata*	C	C	C	C
Flixweed	*Descurania sophia*	C	C	C	C
Blue mustard	*Chorispora tenella*	C	C	S	C
Black mustard	*Brassica nigra*	C	C	C	C
Wild mustard	*Brassica kaber*	C	C	C	C
Canola or Rape (vol.)	*Brassica sp.*	C	C	C	C
Pigweed	*Amaranthus retroflexus*	-	S	C	C
Mouseear chickweed	*Cerastium vulgatum*	S	C	-	-

1 & 2 = For field infestations of Japanese brome or cheat (true cheat) only, control may be achieved up to a maximum stage of 6 tillers.
3 = Applications should be made to actively growing weeds.
4 = When used according to label directions, wild oat will be controlled in ID, MT, OR, and WA. Suppression outside these four states.
5 = Fall and Spring sequential applications required. See label for application information.

Comment 442 (Continued)

C = Control **S = Suppression**

DOWNY BROME *(Bromus tectorum)*

Life Cycle: Winter annual
Ligule: Membranous, tall, & toothed margin.
Blades: First blade is tall, narrow, and vertical. Long narrow blades. Hairy on upper and lower surface. Prominent midrib below. Prominent veins above on the second and later blades. Leaves twist clockwise.
Sheaths: Hairy, round, closed and split partway; margins do not overlap.
Other: Often reddish-maroon at the base of the plant.
Seed: Lemma 6-13 mm long and awned. Awn 10-18 mm long, as long as lemma and hairy.

JAPANESE BROME *(Bromus japonicus)*

Life Cycle: Winter annual
Ligule: Membranous, tall, & toothed margin.
Blades: First blade is tall, narrow, and vertical. Long narrow blades. Hairy on upper and lower surface. Prominent veins above and midrib below. Leaves twist clockwise.
Sheaths: Hairy, round, closed and split partway; margins do not overlap.
Seed: Lemma 6-9 mm long, margins not rolled in at maturity and awned. Awn 5-8 mm long, about as long as lemma and without hair.



Olympus™

Comment 442 (Continued)

MT & ND Application Guidelines

- ***Rate:*** Fall Application - Olympus 70WG at 0.9 oz/a
- ***Timing:*** Winter wheat = 2-leaf up to jointing.
  Target actively growing weeds = 1-leaf to 2-tiller grasses and 1-2" broadleaves
- ***Varieties:*** No restrictions
- ***Adjuvant:*** A non–ionic surfactant is required. Use **R-11** at 1 - 2 qt/100 gal.
- ***Spray volume:*** Apply 5-**10** GPA by ground and 5 GPA by air.
- ***Rainfast:*** 4 hours
- ***PHI:*** 71 days for grain or straw.

R-11 SPREADER ACTIVATOR NONIONIC SURFACTANT

North Central Plains – MT, ND

Crop	Cumulative Precipitation	+	Rotation Interval (Months)
Wheat	**0**		**0**
Field Peas	**24**		**12**
Sunflower (Conventional)	**24**		**18**
Barley	**24**		**18**
Canola	**24**		**22**
Lentils	**24**		**22**

This is a the proper rate



CropScience

WILBUR-ELLIS

This bulletin is not intended to provide complete information for application. As with any crop-protection product, always read and follow label instructions. For a additional product information call toll-free 1-866-99Bayer or visit our web site at www.cerealexpert.com



Comment 442
(Continued)

Money, money. The EIS discusses the costs MATL has spent getting easements for alternative routes that may not be built. Why is this a concern for the DEQ? The DEQ says that it's only concern is that the easements meet all the proper regulatory standards. Comment 443

MATL is only purchasing a 45 ft. easement and is forcing the landowner to give up his property rights for the safety zone for nothing. IF the safety zone is a requirement, the DEQ should require MATL to purchase the total 105 ft. the easement it requires to meet these standards as a part of the permit process. Does the 45 ft easement that MATL is offering to purchase meet these standards? Comment 444

What size line is the DEQ permitting? The Draft EIS in its Executive Summary says the proposed transmission line could have the capacity to carry 300MW north and 300MW south for a total of 600MW. Tonbridge Power in its annual statement of April 2007 states that the capacity of the line it is building will be 650MW both ways. Tonbridge states that they are building the line for the additional capacity due to the great interest from its shippers. I don't doubt that there is the interest and need for this additional capacity, but again I ask "What size line is the DEQ permitting?" These are public documents and one must assume they are correct. Comment 445

This company has money for its own purposes, but not for monopoles. Where is the proof that MATL can only afford $800,000.00 addition costs for landowner mitigation on Alternative 2, the Proposed Action? The doubling of line capacity doubles the cash flow of this line. MATL can afford these additional costs Comment 446

Revenues: Tonbridge power, Inc. in a document of March 27, 2007 states that annual revenues will approach 28.4 million by mid-2009 and gross close to CDN $900 million over 25 years. That is at the original 300MW. When you double these figures for the line that MATL tells its investors it is actually building and surmise that they will have no trouble applying to ship more power when the line is built, it makes the one time capital expenditure to build Alternative 4 small. Comment 447

I ask again. "What is the foundation for the statement MATL made to DEQ that they can only afford an additional $800,000 for mitigation for the landowners on Alternative 2 when out of the other side of their mouth they are stating the former revenue projections?" The additional costs with using monopoles would extend the payback period only 4-5 months. For that you are asking the farmers to farm around the H-frames for the rest of his farming career. Comment 448

Then there is the additional revenue from selling the excess fiber optic capacity. Tonbridge tells their investors that this will be "substantial", but tells the DEQ it is inconsequential. Comment 449

The Governor of Montana is proposing a tax cut for these types of lines that ship green energy. Well we all know that at this time this proposal is dead, but it is likely it will be part of the final budget when the legislature finally does a budget. While this is Comment 450

Response 443: One finding and determination that DEQ must make before certifying the project is that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives. However, the Montana Environmental Policy Act requires that an EIS disclose the economic impacts of regulations on an applicant. The cost to the applicant may be a factor in the permitting decision, but it is not the only factor.

Response 444: Comment noted. DEQ requires certificate holders to adhere to the National Electric Safety Code which specifies clearances of supporting structures from other objects and vertical clearances above ground, roads, and water. The agencies do not dictate how MATL meets these clearances, just that they must be met.

Response 445: MATL has proposed a line with the capacity to move 300 MW in both directions. Also see response to comment 346.



PROJECTS

Comment 445 (cont.)

.: MATL ECONOMICS
Robust Revenue Model

• Based on the results of the June 2006 capacity auction, combined with the awarded capacity of the initial FER approved open season, annual revenues should approach $28.4 million by mid-2009 and increase at a contract inflator rate of 2.5% per annum thereafter. Over the life of the project, gross revenue from these new twenty fi year contracts and existing long term contracts should total close to CDN$900 million. MATL has now sold out it 600MWs of "rated" capacity.

• In the June 2006 capacity auction, for the first time ever, an Open Access Same time Information System ("O auction module was used to allocate electric transmission capacity in a competitive environment. The OASIS sy was developed for MATL by Open Access Technology International and is the first of its kind anywhere in the w Using this system, MATL received thirty-seven bids from four different companies. The total amount of capacity was requested was in excess of 2000MWs, or approximately 5x the available capacity up for bid. Capacity was awarded to the bidders based on 1) the conditions placed on the bids and, 2) the present value of the bids. The of the auction were that 180MWs was awarded to Energy Logics, Inc. for a twenty-four year term starting in Q1 MATL also awarded 120MWs of capacity to Wind Hunter LLC for an approximate twenty-five year term starting 2007, and 180MWs of capacity to Invenergy Wind Montana LLC for the same term. The remaining capacity cont to be held by Great Plains Wind and Energy LLC, a successful bidder in MATL's initial open season held in 2005.

Summary Points of Revenue Model:

• Annual revenues should approach $28.4 million by mid-2009

• Over the life of the project, gross aggregate revenues should total close to CDN $900 million.

• Counterparties are required to be credit worthy.

• EBITDA is driven by low O&M / SGA, staffing and property taxes.

• Revenues from future capacity re-sales are almost without incremental cost.

• Contracts are "take or pay" capacity agreements.

• Contracts are subject to conditions precedent including completion of the line, receipt of regulatory approvals, board approval and the wind farms being developed.

• 20% of the contracts are for fifteen year terms, the remaining 80% for twenty-five year terms.

• Short term re-sales will be auctioned through OATT's OASIS system by MATL.

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Comment 445 (cont.)

design engineering is being undertaken on a time and materials basis and forms a small part of the overall cost. To date the Corporation has paid SNC $3,007,251 for design work.

Detailed design on the actual line route has commenced, involving the placement of poles on three dimensional computer assisted design – computer assisted manufacture ("CAD-CAM") to ensure hill and crossing clearances, since an updated aerial survey was undertaken last fall on the new route. As part of this design, the size and rating of conductor and the impact on weight on pole requirements has been decided, including the weight effects of ice loading on the conductor and wind shears up to 165 kilometers per hour. The Corporation has selected the steel reinforced aluminum conductor "Falcon" which has a diameter of 1590 kcmls, and has a theoretical thermal rated capacity of 658 MWs. At high ambient temperatures and limited wind conditions such conductor may not meet industry standards of acceptable line loss performance criteria of 10% or less. The Corporation has been advised the range of thermal capacity of the selected conductor, at acceptable line loss performance in the most adverse wind and temperature conditions, is at least likely to be 450 to 500 MWs or higher.

This additional capacity can only be sold at a future date if and when the two electricity systems, with which the transmission line interconnects, are able to import and export such additional capacity without adverse effect. Further permitting will be required, including an upgrade in the WECC path rating. At present the Corporation has only applied for a rating of 300 MWs rating in both directions, and will only be able to sell firm capacity to such levels until further applications are made and approved. However, both system operators will be able to use the line in emergency situations at a higher rating for emergencies of short duration, such as occurred in July, 2006 when Calgary was subjected to load shedding for several hours due to an operational problem with the British Columbia inter-tie.

The Corporation is aware that the Project is being constructed in a wind corridor, and accordingly has confirmed with SNC a design parameter of tolerating 165 km/h high winds and designated amounts of ice loading without adverse effect. Tender packages have been sent out by SNCto solicit bids from suppliers. Finally, the Corporation has committed to use a certain number of monopoles to diminish the impact on farming activities for certain landowners, where the route contemplates a diagonal crossing. These impacts include loss of production, increased cost of weed control and diminished access for aerial spraying.

Contracts have been awarded to SNC ATP and Power Engineers for the Lethbridge 120S and Marias substations respectively. The Lethbridge station work has been added as an annex to the existing SNC EPC Agreement and thus incorporates all of the terms and conditions embedded therein. The Power Engineers contract provides for a fixed price in respect of engineering and construction management and a flow-through (with an agreed mark-up) of materials and subcontractor services. Work is already well advanced with both companies with the focus now on identifying the necessary long lead-time items and the timeline through regulatory approvals to construction, testing, commissioning and the in-service date.

While quotes are not in hand to confirm final cost amounts, the Corporation believes that the combined cost of the line and stations will come in at $123 million. Including insurance and contingencies the capital construction cost is estimated at $129 million, of which various amounts have already been paid such as the phase shifting transformer. These costs will become increasingly certain as tenders are received and bids accepted for equipment and material supply.

Construction Budget

MATL received initial construction budgets from its proposed EPC contractors during 2005, which were known to be preliminary in nature due to the fact that the design and routing were not as yet set. The preferred route has now been selected, in part to minimize landowner impact and environmental impact,

Comment 445 (Continued)

and is 36 kilometers longer than originally estimated. In addition, design considerations have dictated an increase in capacity of the conductor from 300 MWs to over 650 MWs each way, with concurrent increases in size and cost of poles to meet greater load and weight requirements. Until the final design is set, and construction drawings are completed and procurement bids received, the Corporation has no way of knowing the precise construction budget. Given current discussions with SNC the Corporation expects that the construction budget should not exceed a total of $129 million (not including Project soft or development costs) which is $30 million higher than the preliminary estimates received in 2005, due to two major factors, increased thermal capacity and therefore increased pole size, as well as series capacitors placed in the Marias substation. The Corporation considered this cost increase to be considered prudent since it involves the doubling in thermal transmission capacity, while the increase in capacitors reduces impedance and hence increase emergency ratings, both of which increase revenue potential that may be afforded to the Corporation.

Financing Activities

The Corporation has financed all of its activities with common share equity to date. Management expects that with the cost increases coming from line lengthening and additions of series capacitors needed to increase emergency ratings, future construction financing requirements will total approximately $115 million depending on the length of the final routing, construction elements chosen in pole construction, substation design requirements, and the final contracts signed with the contractors, which may be undertaken in two phases as well as any finance related requirements. To date four financings have taken place, all of which were equity, which have raised total proceeds of $24,990,345 before costs of issue and exercise of options.

On April 27, 2006, the Corporation completed the offering of 41,072,250 units for aggregate gross proceeds of $17,250,345, each unit comprising one common share and one half purchase warrant, where each purchase warrant entitles the holder to purchase an additional common share for $0.55. These funds were applied to construction deposits, design costs, and advancement of the permitting and development process.

In addition, the Corporation acquired 100% of the outstanding shares of Rocky Mountain Power Limited and LECTRIX Limited on April 27, 2007 for share consideration totaling 35,929,000 common shares of the Corporation. These corporations each held a 17.5% interest in MATL, and by virtue of the two acquisitions, the Corporation now has a 100% direct and indirect interest in MATL.

Further financings are dependent on the total cost of construction elements, when such costs are due, and the timing of regulatory approvals. Until the procurement process is completed under the EPC agreement, the Corporation will not know with certainty the amount of total construction elements nor the amount of any deposits on construction elements that will be required in advance of Notice to Proceed. Recent negotiations with EPC contractors have allowed the Corporation to begin to quantify the deposits required for long lead-time material orders, many of which are strongly influenced by commodity prices (for copper, steel, aluminum, etc.).

The Corporation has made efforts to push the requirement for advance payments out to the date of the Notice to Proceed in order to diminish the effect on financial resources prior to availability of the senior financing on Notice to Proceed. For example, the Corporation's order with ABB, Inc. for the 330 megavoltampere phase shifting transformer for $10.956 million has been restructured such that the required payments, which to date have aggregated $8.5 million, will be completed on the date of the Notice to Proceed and paid from the funds available out of the senior project finance debt. Secondly, the Corporation has made arrangements for alternate secured debt financing for any other long lead items,

Comment 445 (Continued)

Response 446: Comment noted. Please see response to comment 448.

Response 447: Comment noted.

Response 448: MATL explained the foundation for this statement as follows: "All of the company's financial resources are directed to the goals of permitting and building the MATL project and therefore the company does not have "Money for its own purposes." Further, the company's financial resources are the debt and equity financing provided by bankers and shareholders. These bankers and shareholders have many other alternatives to the MATL project to consider for potential investment. The MATL project must provide a competitive return relative to other investment alternatives to secure the necessary financing.

The $800,000 amount is not "cast in stone" due to factors such as the appreciation on the Canadian currency, however, the amount of this additional expenditure needs to be balanced against the widely accepted business practice to build the lowest cost transmission system that meets all applicable environmental, safety and reliability standards. This widely accepted business practice is a key factor that MATL must keep in mind to ensure that its project remains competitive." MATL's economic analysis determined that the project is feasible on the basis of commitments from shippers for long term firm contracts for 300 MW northbound. Although MATL's 300 MW s of southbound capacity is also underpinned by long term contracts, these contracts continue to be subject to the shipper's confirmation of acceptance and hence MATL cannot rely on the attendant revenue to underpin is project." To the extent that MATL lowers property values, this would be a cost to Montana. See the revised discussion on land values in Section 3.13.

Response 449: Comment noted. However, as indicated in Section 2.3, no plans have been made to use the excess fiber capacity for commercial purposes.

Comment 451

conjecture at this time, the governors' office estimates that this will provide MATL with an annual tax relief of $5,000,000.00.

The opportunities for the company to enhance its cash flow keep coming. If MATL can't afford to build this powerline right, with monopoles, it should not be built. Comment 452

While reading the Draft EIS it was clear how much work and effort the DEQ put into this document. Comment 453

The DEQ took the horrendous proposed routes that MATL submitted and tried very hard to lessen the impacts of a diagonal powerline. The documents main deficit is the lack of the other side of the equation; the costs of farming around the poles to the farmer. This still needs to be done. If MATL is going to make an annual payment of offset these costs then it should be part of the certificate. Once the certificate is issued I don't see that the DEQ has any authority beyond that time to force MATL to do anything. Comment 454

Sincerely,

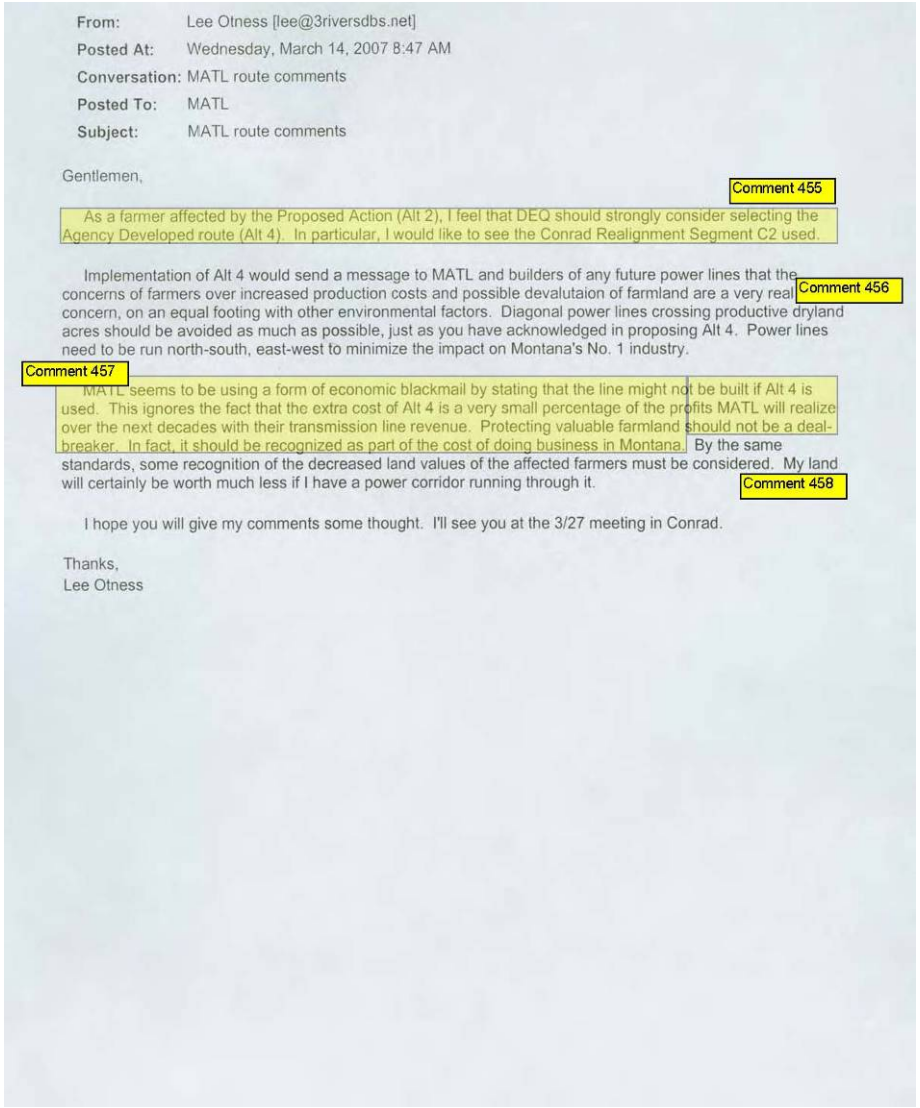
Chris Stephens

Response 450 and 451: See revised Section 3.13 for estimates on property tax savings to MATL from recent changes in the law.

Response 452: Comment noted.

Response 453: Comment noted.

Response 454: Comment noted.



From: Lee Otness [lee@3riversdbs.net]
Posted At: Wednesday, March 14, 2007 8:47 AM
Conversation: MATL route comments
Posted To: MATL
Subject: MATL route comments

Gentlemen,

Comment 455

As a farmer affected by the Proposed Action (Alt 2), I feel that DEQ should strongly consider selecting the Agency Developed route (Alt 4). In particular, I would like to see the Conrad Realignment Segment C2 used.

Implementation of Alt 4 would send a message to MATL and builders of any future power lines that the concerns of farmers over increased production costs and possible devalutaion of farmland are a very real concern, on an equal footing with other environmental factors. Diagonal power lines crossing productive dryland acres should be avoided as much as possible, just as you have acknowledged in proposing Alt 4. Power lines need to be run north-south, east-west to minimize the impact on Montana's No. 1 industry.

Comment 456

Comment 457

MATL seems to be using a form of economic blackmail by stating that the line might not be built if Alt 4 is used. This ignores the fact that the extra cost of Alt 4 is a very small percentage of the profits MATL will realize over the next decades with their transmission line revenue. Protecting valuable farmland should not be a deal-breaker. In fact, it should be recognized as part of the cost of doing business in Montana. By the same standards, some recognition of the decreased land values of the affected farmers must be considered. My land will certainly be worth much less if I have a power corridor running through it.

Comment 458

I hope you will give my comments some thought. I'll see you at the 3/27 meeting in Conrad.

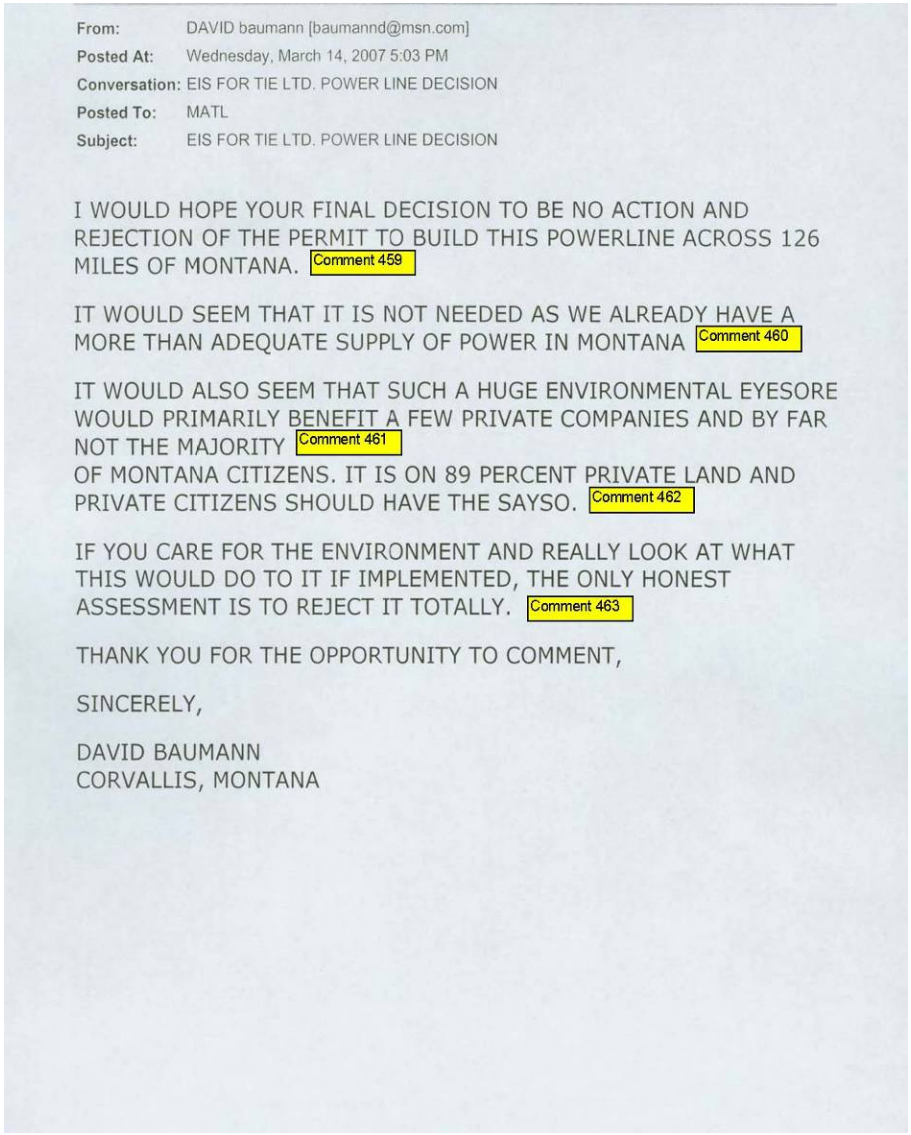
Thanks,
Lee Otness

Response 455: Comment noted. See the revised discussion of potential costs of farming around structures and a comparison of the costs of farming around structures to the additional costs associated with Alternative 4 in Section 3.13.

Response 456: Comment noted. See response to comment 247.

Response 457: Comment noted.

Response 458: Comment noted.



From: DAVID baumann [baumannd@msn.com]
Posted At: Wednesday, March 14, 2007 5:03 PM
Conversation: EIS FOR TIE LTD. POWER LINE DECISION
Posted To: MATL
Subject: EIS FOR TIE LTD. POWER LINE DECISION

I WOULD HOPE YOUR FINAL DECISION TO BE NO ACTION AND REJECTION OF THE PERMIT TO BUILD THIS POWERLINE ACROSS 126 MILES OF MONTANA. Comment 459

IT WOULD SEEM THAT IT IS NOT NEEDED AS WE ALREADY HAVE A MORE THAN ADEQUATE SUPPLY OF POWER IN MONTANA Comment 460

IT WOULD ALSO SEEM THAT SUCH A HUGE ENVIRONMENTAL EYESORE WOULD PRIMARILY BENEFIT A FEW PRIVATE COMPANIES AND BY FAR NOT THE MAJORITY Comment 461
OF MONTANA CITIZENS. IT IS ON 89 PERCENT PRIVATE LAND AND PRIVATE CITIZENS SHOULD HAVE THE SAYSO. Comment 462

IF YOU CARE FOR THE ENVIRONMENT AND REALLY LOOK AT WHAT THIS WOULD DO TO IT IF IMPLEMENTED, THE ONLY HONEST ASSESSMENT IS TO REJECT IT TOTALLY. Comment 463

THANK YOU FOR THE OPPORTUNITY TO COMMENT,

SINCERELY,

DAVID BAUMANN
CORVALLIS, MONTANA

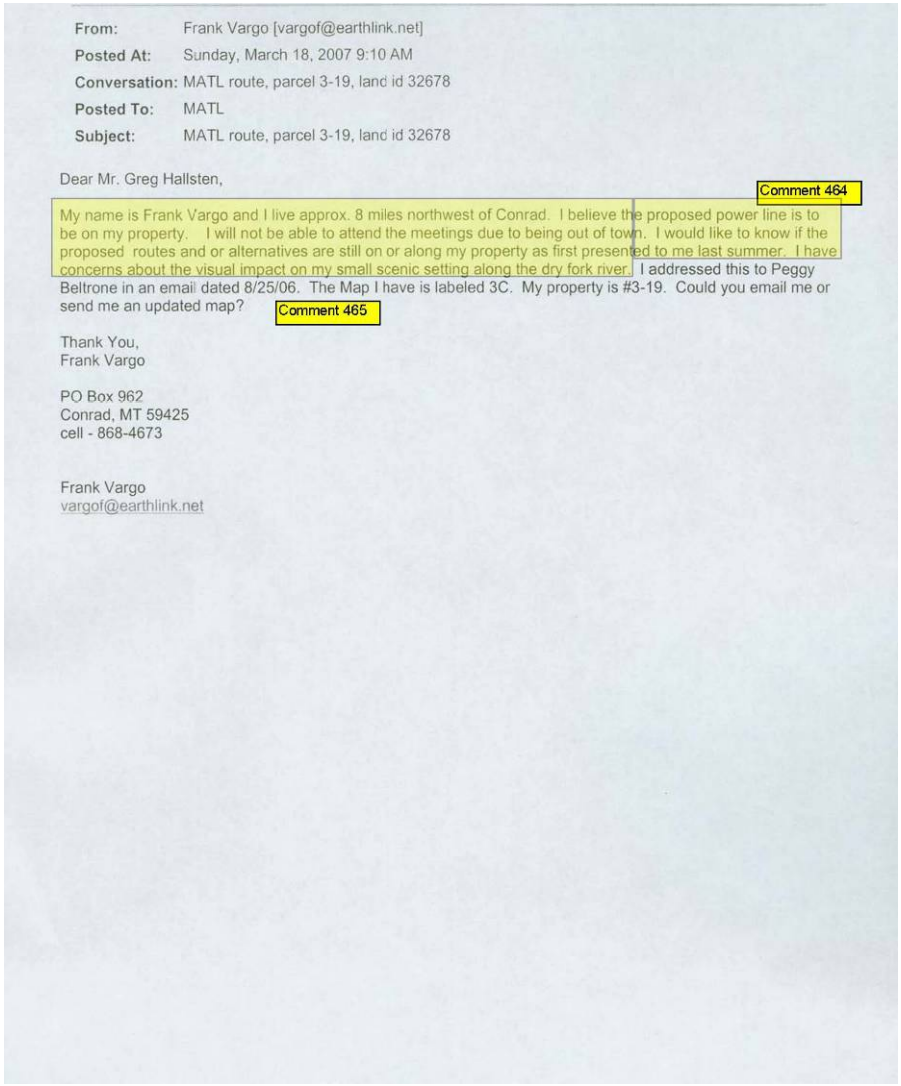
Response 459: Comment noted.

Response 460: Comment noted.

Response 461: Montana does produce more electricity than it consumes. The need for this line as stated in Section 1.2.1 is "to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists), provide access to potential markets for new and existing power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources."

Response 462: Comment noted. As with many businesses, the owner of the business potentially benefits or is hurt from any profits or losses, and society as a whole does not directly reap the profits or incur the losses from that business. The state and counties would gain tax revenues as indicated in Section 3.13.

Response 463: Under the Major Facility Siting Act, the decision to approve, approve with conditions, or disapprove rests with DEQ's director.



From: Frank Vargo [vargof@earthlink.net]
Posted At: Sunday, March 18, 2007 9:10 AM
Conversation: MATL route, parcel 3-19, land id 32678
Posted To: MATL
Subject: MATL route, parcel 3-19, land id 32678

Dear Mr. Greg Hallsten,

Comment 464

My name is Frank Vargo and I live approx. 8 miles northwest of Conrad. I believe the proposed power line is to be on my property. I will not be able to attend the meetings due to being out of town. I would like to know if the proposed routes and or alternatives are still on or along my property as first presented to me last summer. I have concerns about the visual impact on my small scenic setting along the dry fork river. I addressed this to Peggy Beltrone in an email dated 8/25/06. The Map I have is labeled 3C. My property is #3-19. Could you email me or send me an updated map?

Comment 465

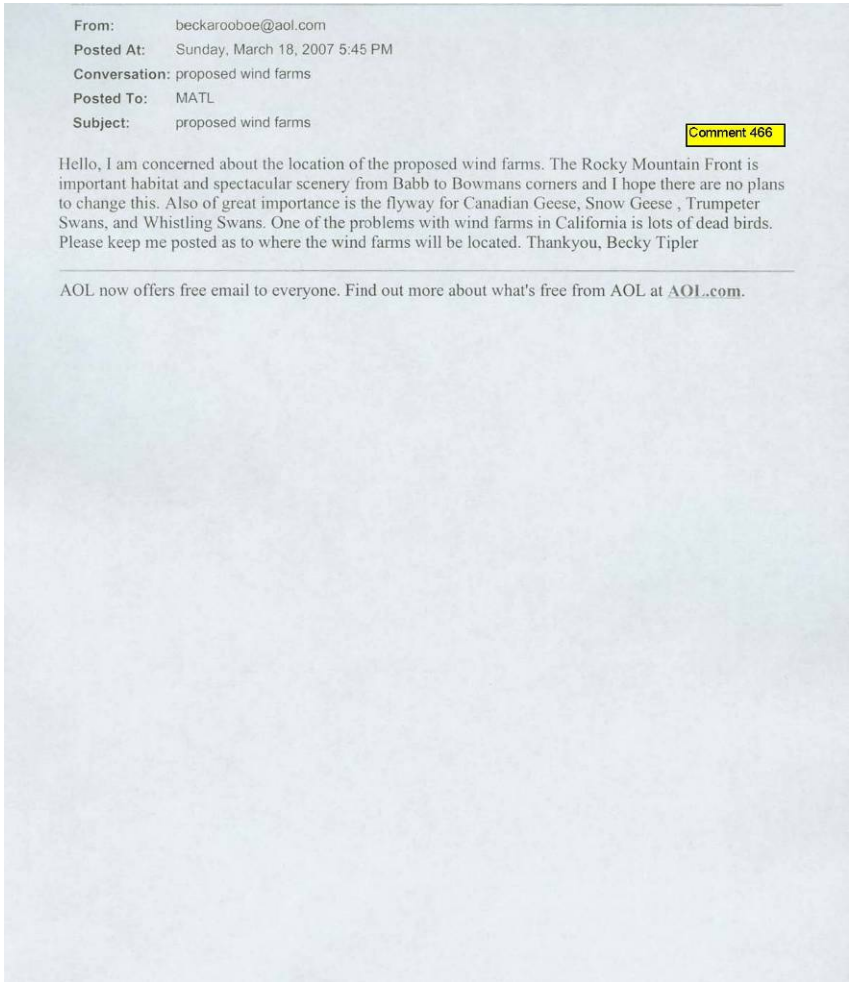
Thank You,
Frank Vargo

PO Box 962
Conrad, MT 59425
cell - 868-4673

Frank Vargo
vargof@earthlink.net

Response 464: Comment noted.

Response 465: Updated maps have been provided to Mr. Vargo. Your property northwest of Conrad would not be crossed by any alternative. Alternative 3 would parallel the existing NorthWestern Energy Great Falls to Cut Bank line about 1/10 mile west of your property. If a residence were located at the western edge of your property, it would have to be impacted due to the proximity of the line. Alternative 2 would be located approximately ½ mile to the west of your property, while Alternative 4 would be located about 4 miles to the east.



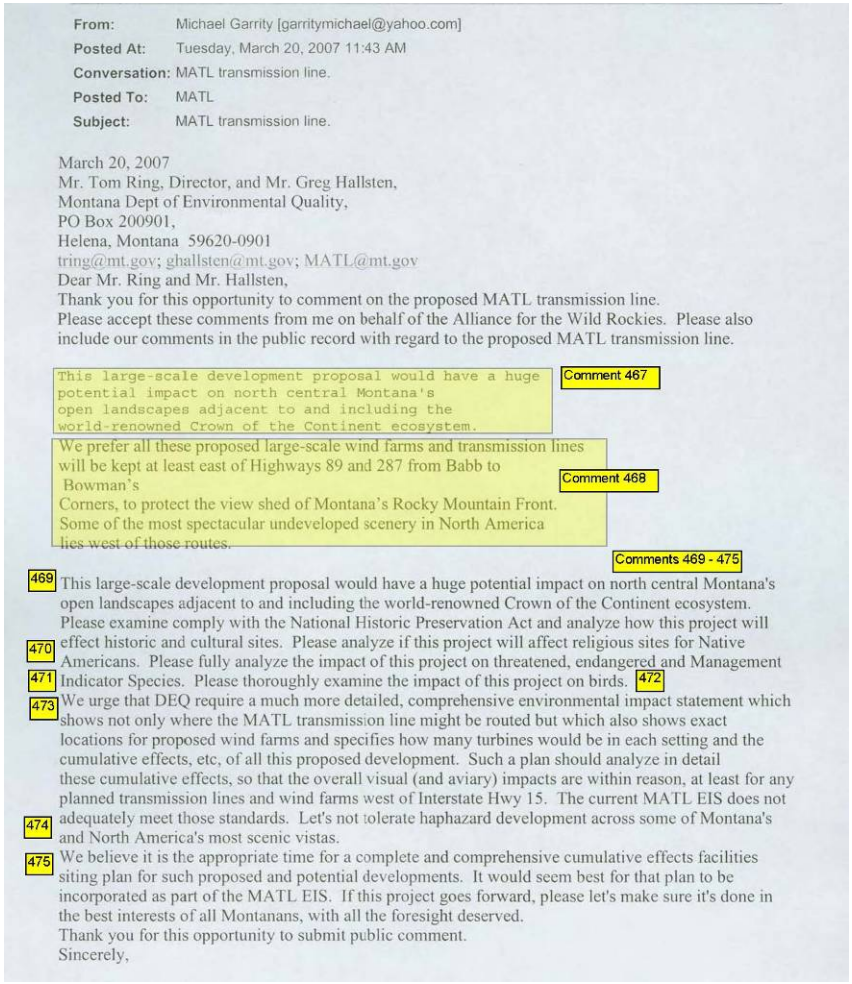
From: beckarooboe@aol.com
Posted At: Sunday, March 18, 2007 5:45 PM
Conversation: proposed wind farms
Posted To: MATL
Subject: proposed wind farms

Comment 466

Hello, I am concerned about the location of the proposed wind farms. The Rocky Mountain Front is important habitat and spectacular scenery from Babb to Bowmans corners and I hope there are no plans to change this. Also of great importance is the flyway for Canadian Geese, Snow Geese , Trumpeter Swans, and Whistling Swans. One of the problems with wind farms in California is lots of dead birds. Please keep me posted as to where the wind farms will be located. Thankyou, Becky Tipler

AOL now offers free email to everyone. Find out more about what's free from AOL at AOL.com.

Response 466: See response to comment 464.



From: Michael Garrity [garritymichael@yahoo.com]
Posted At: Tuesday, March 20, 2007 11:43 AM
Conversation: MATL transmission line.
Posted To: MATL
Subject: MATL transmission line.

March 20, 2007
Mr. Tom Ring, Director, and Mr. Greg Hallsten,
Montana Dept of Environmental Quality,
PO Box 200901,
Helena, Montana 59620-0901
tring@mt.gov; ghallsten@mt.gov; MATL@mt.gov
Dear Mr. Ring and Mr. Hallsten,
Thank you for this opportunity to comment on the proposed MATL transmission line.
Please accept these comments from me on behalf of the Alliance for the Wild Rockies. Please also include our comments in the public record with regard to the proposed MATL transmission line.

This large-scale development proposal would have a huge potential impact on north central Montana's open landscapes adjacent to and including the world-renowned Crown of the Continent ecosystem.

Comment 467

We prefer all these proposed large-scale wind farms and transmission lines will be kept at least east of Highways 89 and 287 from Babb to Bowman's Corners, to protect the view shed of Montana's Rocky Mountain Front. Some of the most spectacular undeveloped scenery in North America lies west of those routes.

Comment 468

Comments 469 - 475

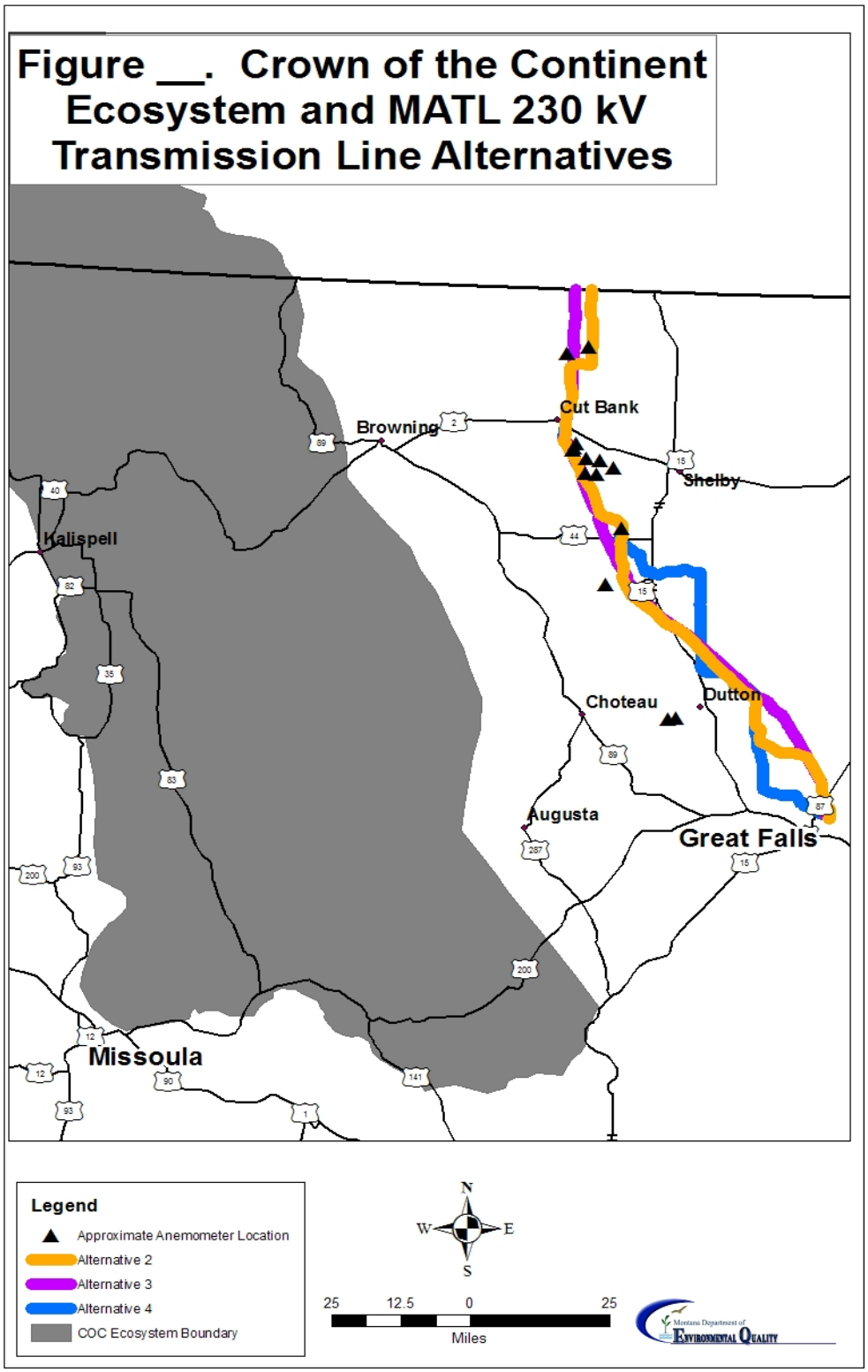
469 This large-scale development proposal would have a huge potential impact on north central Montana's open landscapes adjacent to and including the world-renowned Crown of the Continent ecosystem. Please examine comply with the National Historic Preservation Act and analyze how this project will
470 effect historic and cultural sites. Please analyze if this project will affect religious sites for Native Americans. Please fully analyze the impact of this project on threatened, endangered and Management
471 Indicator Species. Please thoroughly examine the impact of this project on birds. 472
473 We urge that DEQ require a much more detailed, comprehensive environmental impact statement which shows not only where the MATL transmission line might be routed but which also shows exact locations for proposed wind farms and specifies how many turbines would be in each setting and the cumulative effects, etc, of all this proposed development. Such a plan should analyze in detail these cumulative effects, so that the overall visual (and aviary) impacts are within reason, at least for any planned transmission lines and wind farms west of Interstate Hwy 15. The current MATL EIS does not
474 adequately meet those standards. Let's not tolerate haphazard development across some of Montana's and North America's most scenic vistas.
475 We believe it is the appropriate time for a complete and comprehensive cumulative effects facilities siting plan for such proposed and potential developments. It would seem best for that plan to be incorporated as part of the MATL EIS. If this project goes forward, please let's make sure it's done in the best interests of all Montanans, with all the foresight deserved.
Thank you for this opportunity to submit public comment.
Sincerely,

Response 467: Comment noted. See the revised discussion of cumulative impacts in Chapter 4. The transmission line and planned wind farms would be located well east of the Crown of the Continent ecosystem as indicated in the attached figure.

Response 468: Comment noted. The potential wind farms which are known by the agencies and that would potentially connect to the MATL transmission line would all be located east of highways 89 and 287. The proposed transmission line also would be located east of these highways. Also see the revised discussion of cumulative impacts in Chapter 4.

Response 469: A thorough cultural resource investigation designed to meet all data requirements of Section 106 of the National Historic Preservation Act has been conducted. The investigation included pedestrian inventory of the proposed action and analysis of historic/prehistoric context; historic, prehistoric and rural districts; landscape issues; traditional cultural properties and landscapes; and individual site significance. See Section 3.14 for additional information.

Response 470: DOE initiated formal consultation with the Blackfeet Nation and the Confederated Salish and Kootenai Tribes in July 2007 to identify and evaluate historic properties, including those of traditional religious and cultural importance. DOE also has initiated consultation with the U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act.


Figure __. Crown of the Continent Ecosystem and MATL 230 kV Transmission Line Alternatives
Cut Bank
Browning
Shelby
Kalispell
Choteau
Dutton
Augusta
Great Falls
Missoula
Legend
Approximate Anemometer Location
Alternative 2
Alternative 3
Alternative 4
COC Ecosystem Boundary
N
W
E
S
25
12.5
0
25
Miles
Montana Department of Environmental Quality

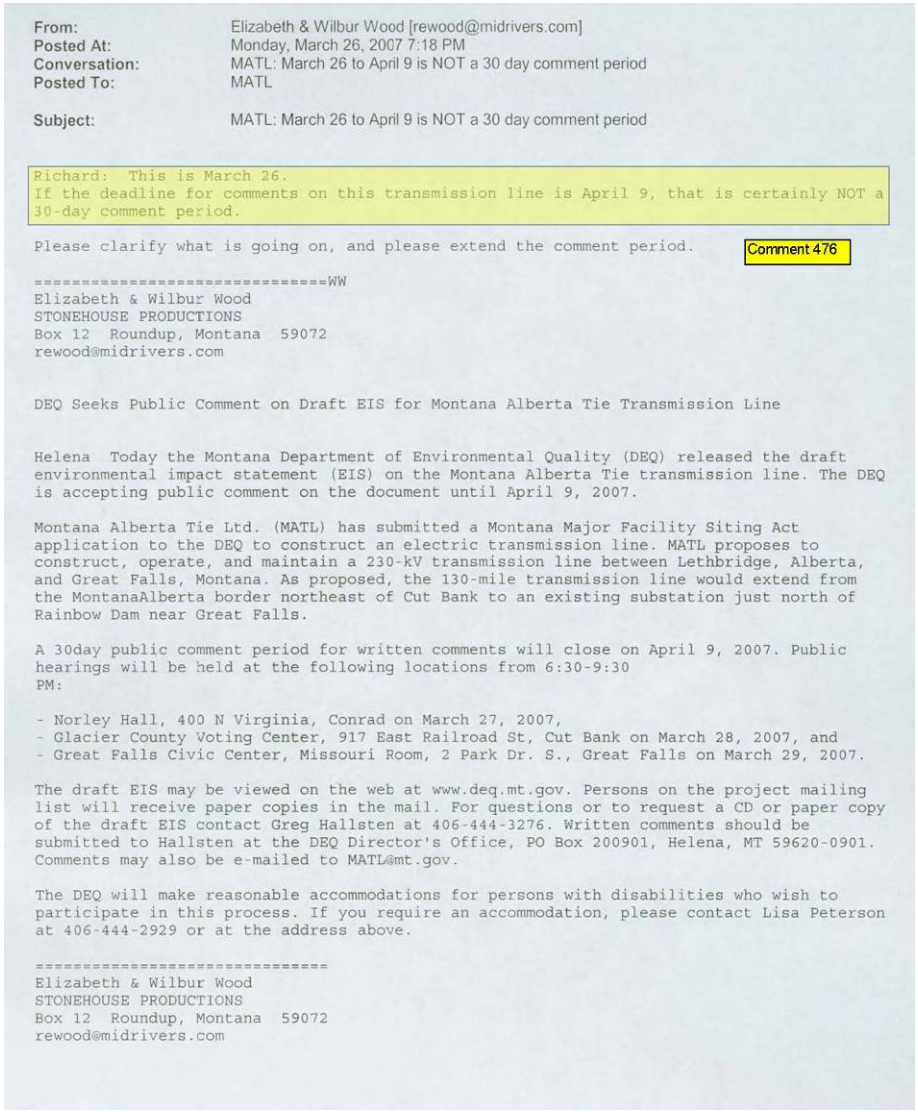
Response 471: The potential effects of the transmission line on threatened and endangered species is indicated in Section 3.10. See the revised discussion of cumulative impacts in Section 4.14.

Response 472: See the revised discussion of cumulative impacts in Section 4.9 for more information about potential impacts to birds from wind farm development.

Response 473: Comment noted. Exact locations of wind farms and/or individual wind turbines are not known at this time. See the revised discussion of cumulative impacts in Chapter 4.

Response 474: Comment noted. The discussion of cumulative impacts for the proposed MATL transmission line has been expanded in Chapter 4.

Response 475: A revised discussion of cumulative impacts can be found in Chapter 4. The agencies do not have the regulatory authority to require siting plans for wind generators.



From: Elizabeth & Wilbur Wood [rewood@midrivers.com]
Posted At: Monday, March 26, 2007 7:18 PM
Conversation: MATL: March 26 to April 9 is NOT a 30 day comment period
Posted To: MATL

Subject: MATL: March 26 to April 9 is NOT a 30 day comment period

Richard: This is March 26.
If the deadline for comments on this transmission line is April 9, that is certainly NOT a 30-day comment period.

Please clarify what is going on, and please extend the comment period. Comment 476

==========WW
Elizabeth & Wilbur Wood
STONEHOUSE PRODUCTIONS
Box 12 Roundup, Montana 59072
rewood@midrivers.com

DEQ Seeks Public Comment on Draft EIS for Montana Alberta Tie Transmission Line

Helena Today the Montana Department of Environmental Quality (DEQ) released the draft environmental impact statement (EIS) on the Montana Alberta Tie transmission line. The DEQ is accepting public comment on the document until April 9, 2007.

Montana Alberta Tie Ltd. (MATL) has submitted a Montana Major Facility Siting Act application to the DEQ to construct an electric transmission line. MATL proposes to construct, operate, and maintain a 230-kV transmission line between Lethbridge, Alberta, and Great Falls, Montana. As proposed, the 130-mile transmission line would extend from the MontanaAlberta border northeast of Cut Bank to an existing substation just north of Rainbow Dam near Great Falls.

A 30day public comment period for written comments will close on April 9, 2007. Public hearings will be held at the following locations from 6:30-9:30 PM:

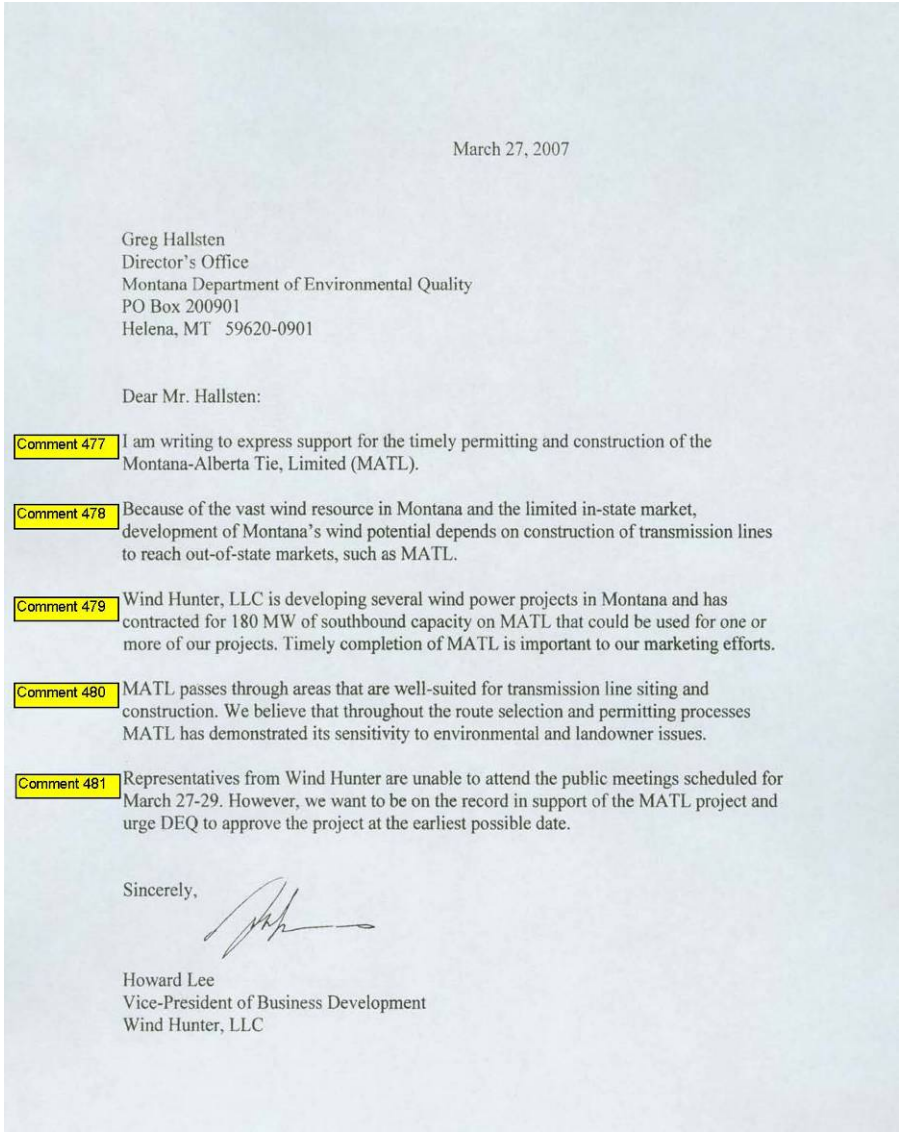
- Norley Hall, 400 N Virginia, Conrad on March 27, 2007,
- Glacier County Voting Center, 917 East Railroad St, Cut Bank on March 28, 2007, and
- Great Falls Civic Center, Missouri Room, 2 Park Dr. S., Great Falls on March 29, 2007.

The draft EIS may be viewed on the web at www.deq.mt.gov. Persons on the project mailing list will receive paper copies in the mail. For questions or to request a CD or paper copy of the draft EIS contact Greg Hallsten at 406-444-3276. Written comments should be submitted to Hallsten at the DEQ Director's Office, PO Box 200901, Helena, MT 59620-0901. Comments may also be e-mailed to MATL@mt.gov.

The DEQ will make reasonable accommodations for persons with disabilities who wish to participate in this process. If you require an accommodation, please contact Lisa Peterson at 406-444-2929 or at the address above.

==========
Elizabeth & Wilbur Wood
STONEHOUSE PRODUCTIONS
Box 12 Roundup, Montana 59072
rewood@midrivers.com

Response 476: DEQ's draft EIS (DOE's draft EA) was published on March 9, 2007. In addition, the comment period was extended an additional three weeks.



March 27, 2007

Greg Hallsten
Director's Office
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Dear Mr. Hallsten:

Comment 477 I am writing to express support for the timely permitting and construction of the Montana-Alberta Tie, Limited (MATL).

Comment 478 Because of the vast wind resource in Montana and the limited in-state market, development of Montana's wind potential depends on construction of transmission lines to reach out-of-state markets, such as MATL.

Comment 479 Wind Hunter, LLC is developing several wind power projects in Montana and has contracted for 180 MW of southbound capacity on MATL that could be used for one or more of our projects. Timely completion of MATL is important to our marketing efforts.

Comment 480 MATL passes through areas that are well-suited for transmission line siting and construction. We believe that throughout the route selection and permitting processes MATL has demonstrated its sensitivity to environmental and landowner issues.

Comment 481 Representatives from Wind Hunter are unable to attend the public meetings scheduled for March 27-29. However, we want to be on the record in support of the MATL project and urge DEQ to approve the project at the earliest possible date.

Sincerely,

Howard Lee
Vice-President of Business Development
Wind Hunter, LLC

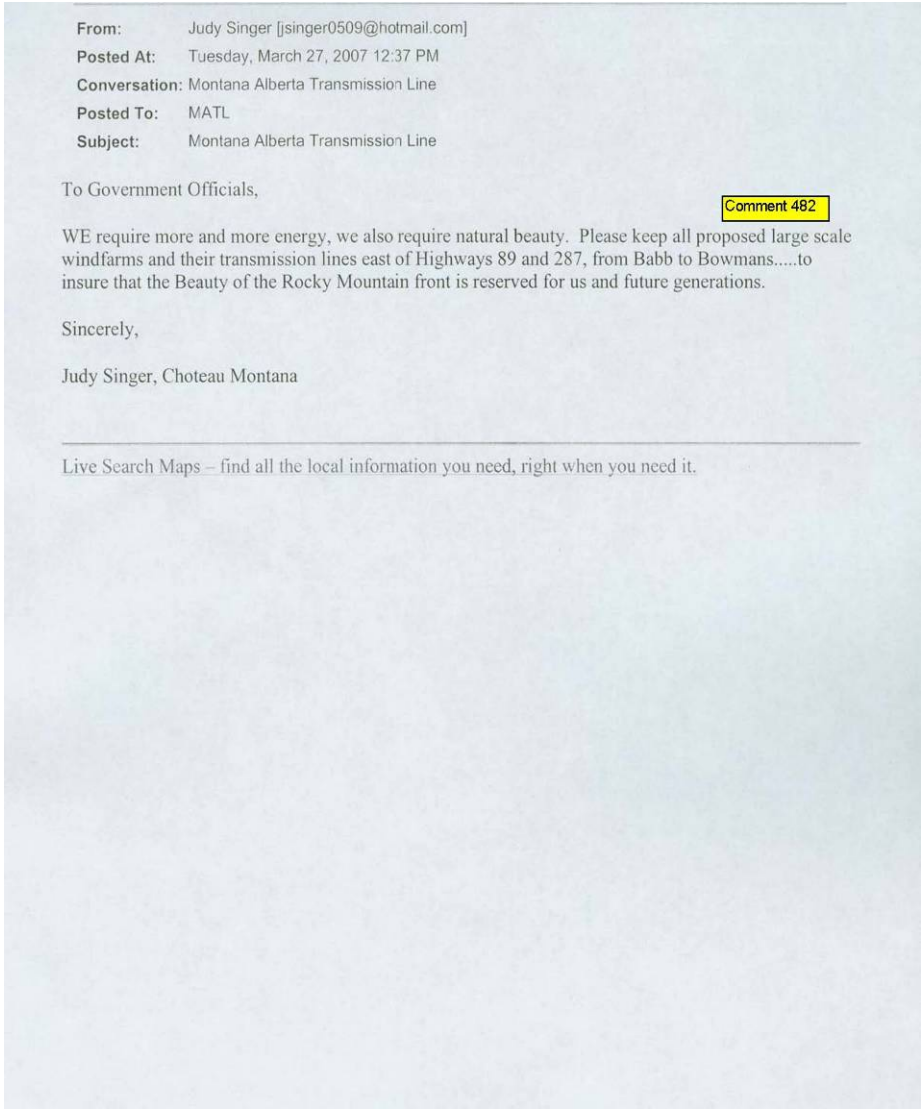
Response 477: Comment noted.

Response 478: Comment noted. The proposed line would potentially serve proposed wind farms and would serve as a link between the Alberta and Montana power grids allowing power to be shipped in both directions. In addition to the firm contracts with wind farm developers, when wind generators are not fully using their contracted capacity, the MATL line would be available for non-firm transactions allowing power from other sources of generation to be imported to or exported from Montana.

Response 479: Comment noted.

Response 480: Comment noted.

Response 481: Comment noted.



From: Judy Singer [jsinger0509@hotmail.com]
Posted At: Tuesday, March 27, 2007 12:37 PM
Conversation: Montana Alberta Transmission Line
Posted To: MATL
Subject: Montana Alberta Transmission Line

To Government Officials,

Comment 482

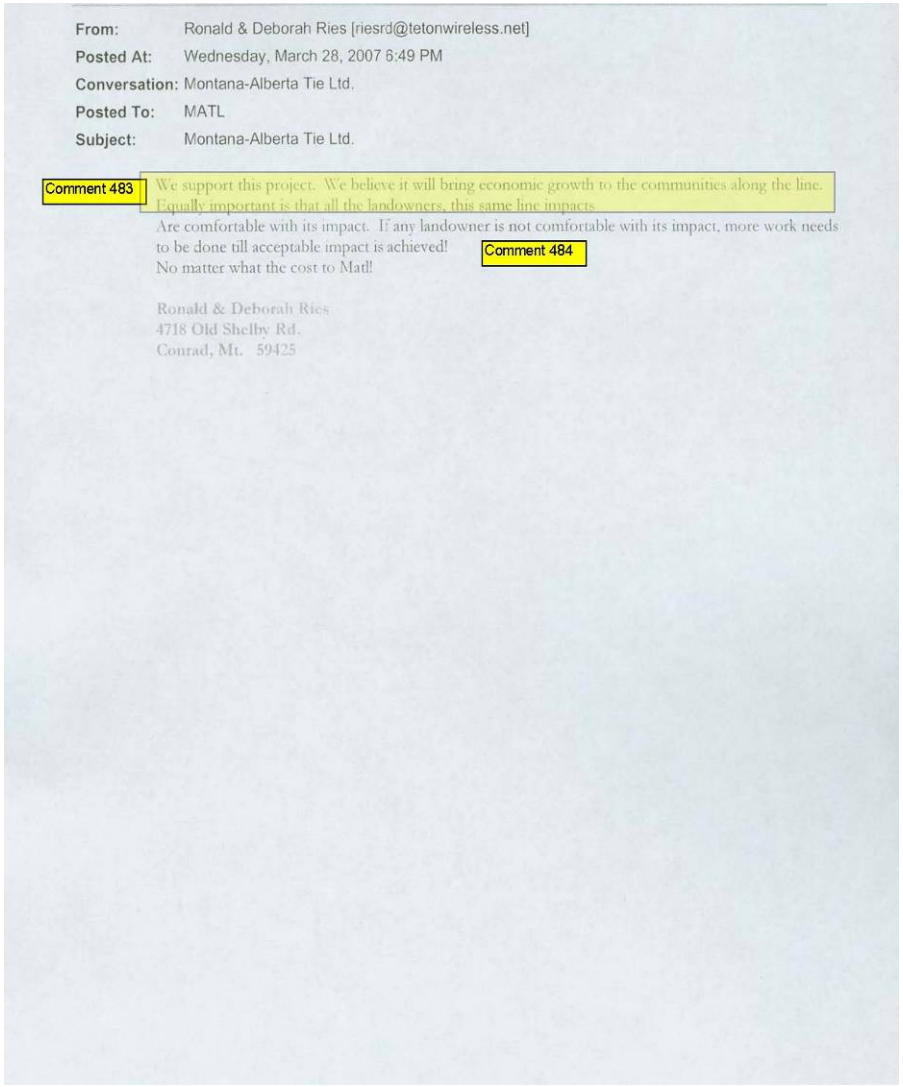
WE require more and more energy, we also require natural beauty. Please keep all proposed large scale windfarms and their transmission lines east of Highways 89 and 287, from Babb to Bowmans.....to insure that the Beauty of the Rocky Mountain front is reserved for us and future generations.

Sincerely,

Judy Singer, Choteau Montana

Live Search Maps – find all the local information you need, right when you need it.

Response 482: See response to comment 468.



From: Ronald & Deborah Ries [riesrd@tetonwireless.net]
Posted At: Wednesday, March 28, 2007 6:49 PM
Conversation: Montana-Alberta Tie Ltd.
Posted To: MATL
Subject: Montana-Alberta Tie Ltd.

Comment 483

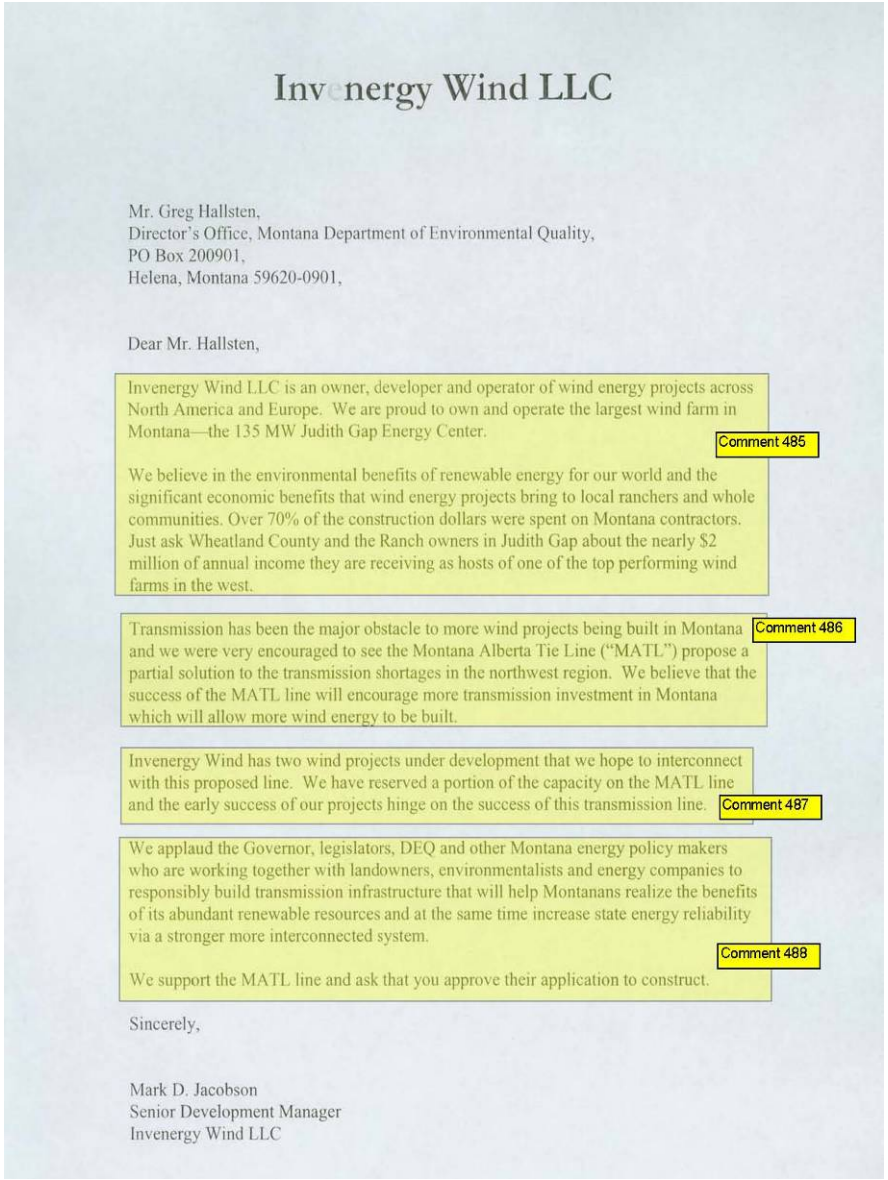
We support this project. We believe it will bring economic growth to the communities along the line. Equally important is that all the landowners, this same line impacts
Are comfortable with its impact. If any landowner is not comfortable with its impact, more work needs to be done till acceptable impact is achieved!
No matter what the cost to Matl!

Comment 484

Ronald & Deborah Ries
4718 Old Shelby Rd.
Conrad, Mt. 59425

Response 483: Comment noted.

Response 484: Comment noted.



Invenergy Wind LLC

Mr. Greg Hallsten,
Director's Office, Montana Department of Environmental Quality,
PO Box 200901,
Helena, Montana 59620-0901,

Dear Mr. Hallsten,

Invenergy Wind LLC is an owner, developer and operator of wind energy projects across North America and Europe. We are proud to own and operate the largest wind farm in Montana—the 135 MW Judith Gap Energy Center.

Comment 485

We believe in the environmental benefits of renewable energy for our world and the significant economic benefits that wind energy projects bring to local ranchers and whole communities. Over 70% of the construction dollars were spent on Montana contractors. Just ask Wheatland County and the Ranch owners in Judith Gap about the nearly $2 million of annual income they are receiving as hosts of one of the top performing wind farms in the west.

Transmission has been the major obstacle to more wind projects being built in Montana and we were very encouraged to see the Montana Alberta Tie Line ("MATL") propose a partial solution to the transmission shortages in the northwest region. We believe that the success of the MATL line will encourage more transmission investment in Montana which will allow more wind energy to be built.

Comment 486

Invenergy Wind has two wind projects under development that we hope to interconnect with this proposed line. We have reserved a portion of the capacity on the MATL line and the early success of our projects hinge on the success of this transmission line.

Comment 487

We applaud the Governor, legislators, DEQ and other Montana energy policy makers who are working together with landowners, environmentalists and energy companies to responsibly build transmission infrastructure that will help Montanans realize the benefits of its abundant renewable resources and at the same time increase state energy reliability via a stronger more interconnected system.

Comment 488

We support the MATL line and ask that you approve their application to construct.

Sincerely,

Mark D. Jacobson
Senior Development Manager
Invenergy Wind LLC

Response 485: Comment noted.

Response 486: Comment noted. The agencies are not aware of any other plans for transmission lines in the immediate vicinity of MATL's proposed line.

Response 487: Comment noted.

Response 488: Comment noted.

From: Mark Jacobson [MJacobson@invenergyllc.com]
Posted At: Thursday, March 29, 2007 3:43 PM
Conversation: MDEQ public hearings
Posted To: MATL
Subject: FW: MDEQ public hearings

Please include this letter from Invenergy as support for the proposed MATL line.

Mark Jacobson

From: Ches Maciorowski [mailto:ches.maciorowski@matl.ca]
Sent: Friday, March 23, 2007 9:48 AM
To: Bill Alexander; Mark Jacobson; pascoeenergy@aol.com
Cc: Bob Williams
Subject: RE: MDEQ public hearings

Gents, if you are unable to show up in person to the hearing you may submit comments to:

Mr. Greg Hallsten,
Director's Office, Montana Department of Environmental Quality,
PO Box 200901, Helena, Montana 59620-0901,
or e-mail to MATL@mt.gov.

here is an excerpt from the MDEQ posting:

A 30–day public comment period for written comments will close on April 9, 2007.

Public hearings will be held at the following locations from 6:30-9:30 PM:
Norley Hall, 400 N Virginia, Conrad on March 27, 2007,
Glacier County Voting Center, 917 East Railroad St, Cut Bank on March 28, 2007, and
Great Falls Civic Center, Missouri Room, 2 Park Dr. S., Great Falls on March, 29, 2007

Ches

From: Ches Maciorowski
Sent: Monday, March 19, 2007 6:44 PM
To: 'Bill Alexander'; Mark Jacobson; Bill Pascoe (pascoeenergy@aol.com)
Cc: Bob Williams
Subject: MDEQ public hearings

Bill A., Bill P., Mark,

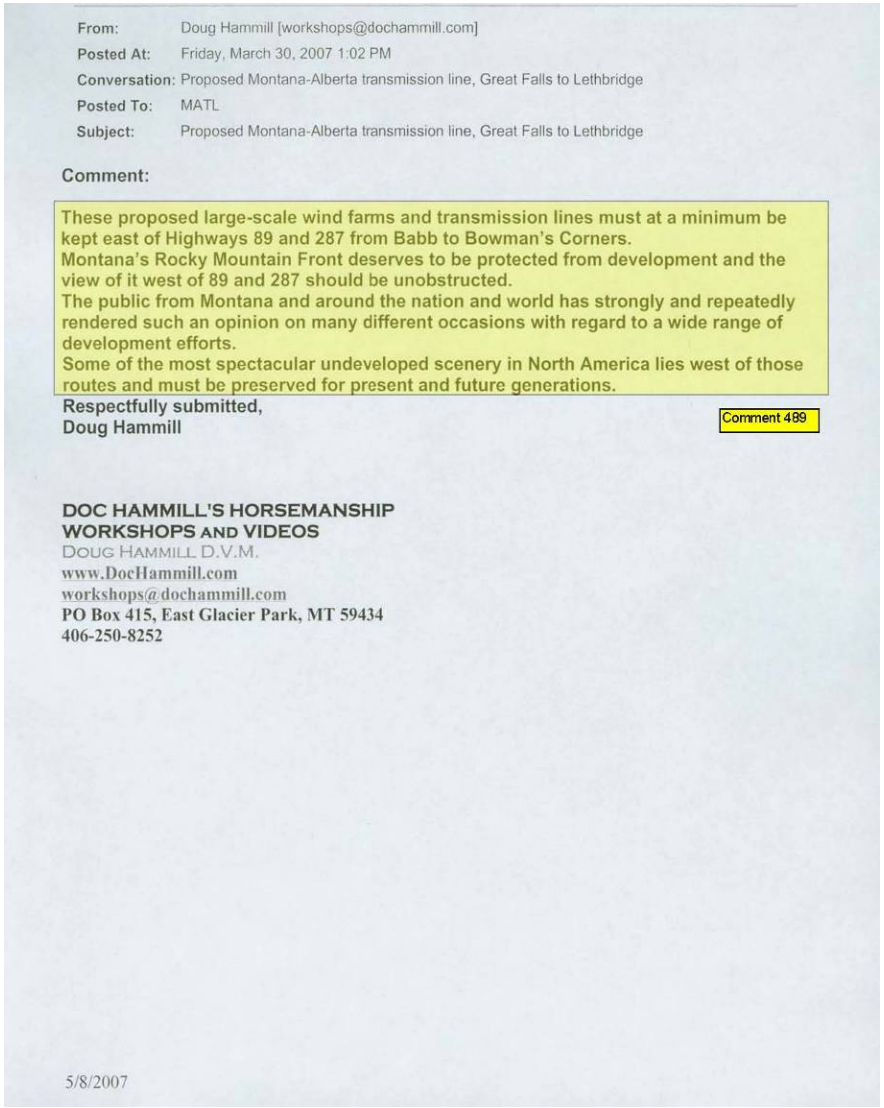
The MDEQ has issued its final draft report for public comment and has scheduled hearings in a number of Montana locations next week. It would be beneficial to our and your project(s) to make a presentation of support at the hearing. An appearance in person would carry more weight however; it may be possible to submit a submission in writing if a personal appearance from your organization is simply not possible. Bob can you please confirm whether the latter method is an acceptable alternative. Thanks.

5/8/2007

MDEQ web site: http://www.deq.state.mt.us/MFS/MATL.asp

Ches

Ches Maciorowski
Vice President, Marketing
Montana Alberta Tie Ltd.
Ph. (403) 264-4465 Ext. 235
Mobile: (403) 660-1100
Fax: (403) 265-1299



From: Doug Hammill [workshops@dochammill.com]
Posted At: Friday, March 30, 2007 1:02 PM
Conversation: Proposed Montana-Alberta transmission line, Great Falls to Lethbridge
Posted To: MATL
Subject: Proposed Montana-Alberta transmission line, Great Falls to Lethbridge

Comment:

These proposed large-scale wind farms and transmission lines must at a minimum be kept east of Highways 89 and 287 from Babb to Bowman's Corners.
Montana's Rocky Mountain Front deserves to be protected from development and the view of it west of 89 and 287 should be unobstructed.
The public from Montana and around the nation and world has strongly and repeatedly rendered such an opinion on many different occasions with regard to a wide range of development efforts.
Some of the most spectacular undeveloped scenery in North America lies west of those routes and must be preserved for present and future generations.

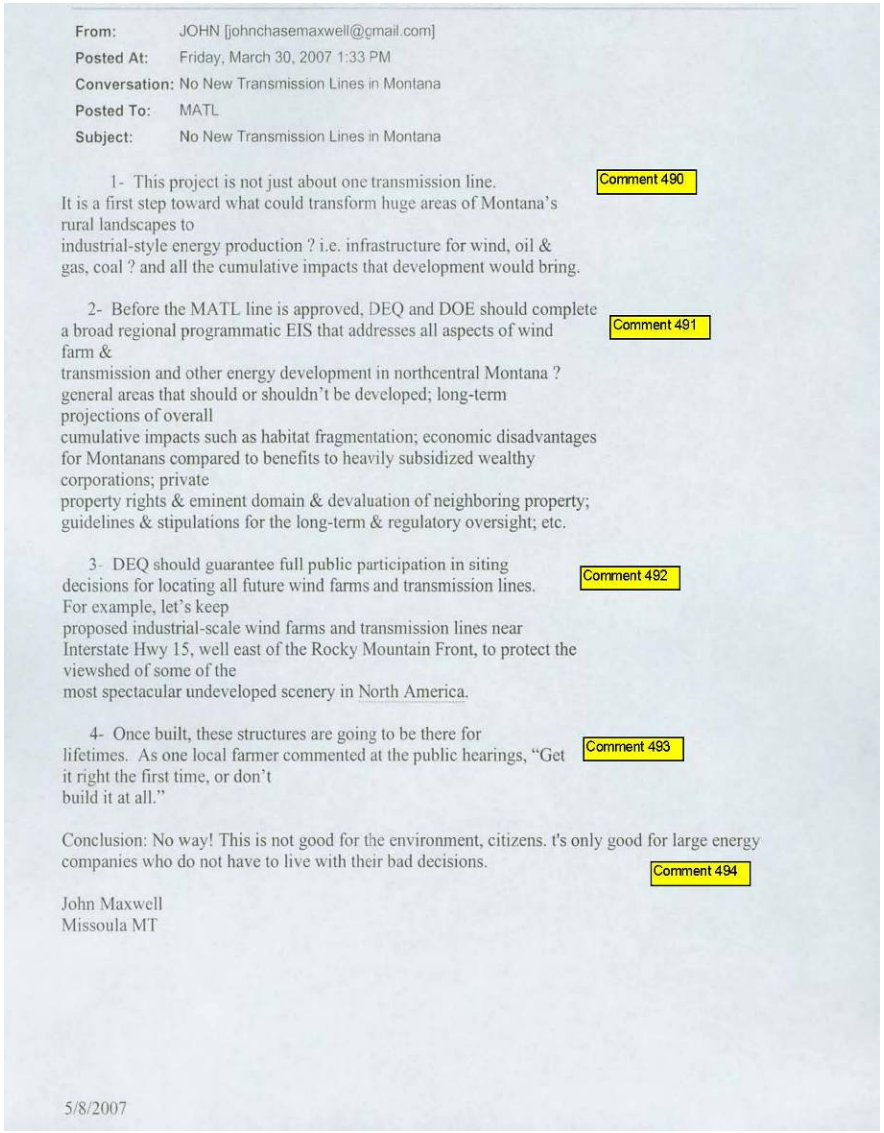
Respectfully submitted,
Doug Hammill

Comment 489

DOC HAMMILL'S HORSEMANSHIP
WORKSHOPS AND VIDEOS
DOUG HAMMILL D.V.M.
www.DocHammill.com
workshops@dochammill.com
PO Box 415, East Glacier Park, MT 59434
406-250-8252

5/8/2007

Response 489: Comment noted. See response to comment 468.



From: JOHN [johnchasemaxwell@gmail.com]
Posted At: Friday, March 30, 2007 1:33 PM
Conversation: No New Transmission Lines in Montana
Posted To: MATL
Subject: No New Transmission Lines in Montana

1- This project is not just about one transmission line. Comment 490
It is a first step toward what could transform huge areas of Montana's rural landscapes to
industrial-style energy production ? i.e. infrastructure for wind, oil & gas, coal ? and all the cumulative impacts that development would bring.

2- Before the MATL line is approved, DEQ and DOE should complete a broad regional programmatic EIS that addresses all aspects of wind farm & Comment 491
transmission and other energy development in northcentral Montana ? general areas that should or shouldn't be developed; long-term projections of overall
cumulative impacts such as habitat fragmentation; economic disadvantages for Montanans compared to benefits to heavily subsidized wealthy corporations; private
property rights & eminent domain & devaluation of neighboring property; guidelines & stipulations for the long-term & regulatory oversight; etc.

3- DEQ should guarantee full public participation in siting decisions for locating all future wind farms and transmission lines. Comment 492
For example, let's keep
proposed industrial-scale wind farms and transmission lines near Interstate Hwy 15, well east of the Rocky Mountain Front, to protect the viewshed of some of the
most spectacular undeveloped scenery in North America.

4- Once built, these structures are going to be there for lifetimes. As one local farmer commented at the public hearings, "Get Comment 493
it right the first time, or don't
build it at all."

Conclusion: No way! This is not good for the environment, citizens. t's only good for large energy companies who do not have to live with their bad decisions. Comment 494

John Maxwell
Missoula MT

5/8/2007

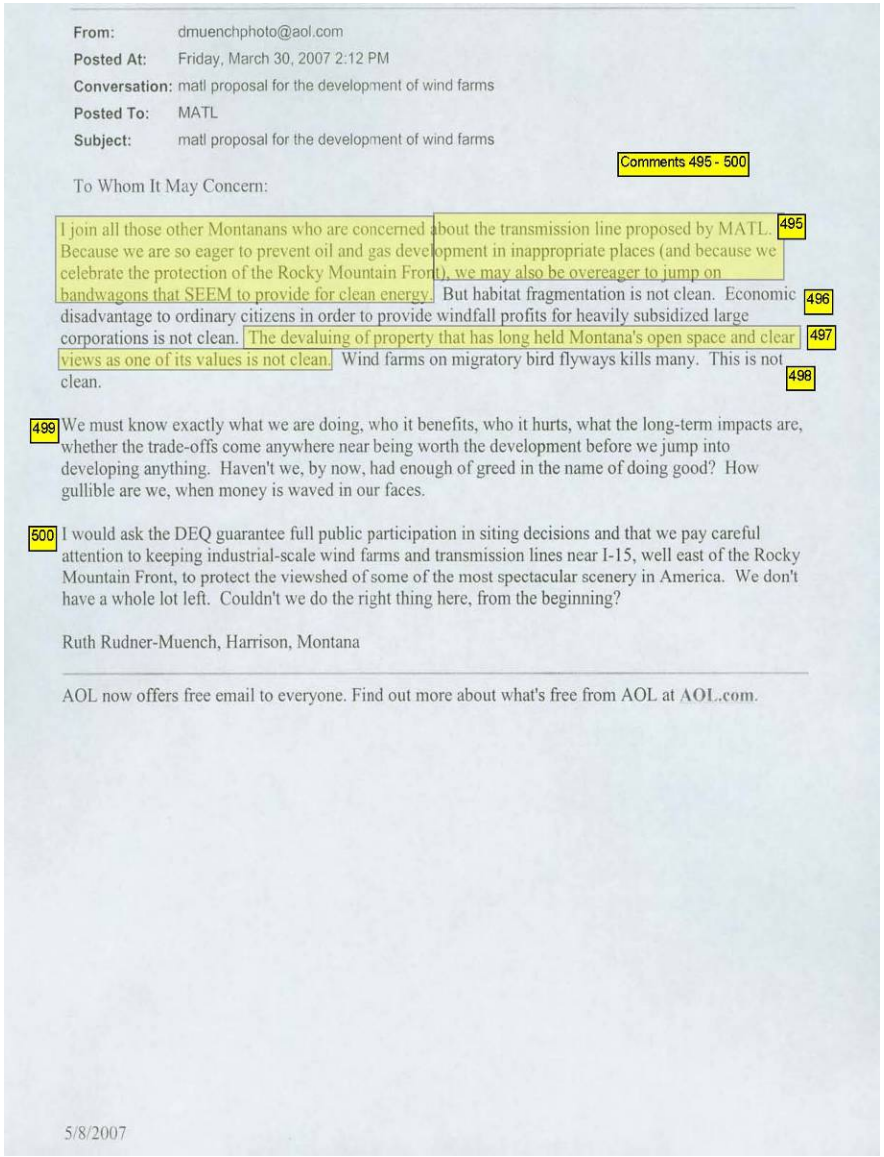
Response 490: See the revised discussion of cumulative impacts in Chapter 4. The agencies are not aware of any plans for oil and gas well development that would be dependent on the MATL line. As indicated in response to comment 478, the MATL line would be available for short-term transactions from other forms of generation.

Response 491: See response to comment 24.

Response 492: The agencies do not have regulatory authority to guarantee full public participation in decisions for locating wind farms. The MATL line would be located east of Interstate 15 south of Brady but remains west of the interstate north of Brady in order to cross the international boundary and align with the rest of the project in Canada.

Response 493: Comment noted. The agencies are aware of a wood pole line built in the 1930s between Great Falls and Havre that is still being used today as a result of ongoing maintenance of the line.

Response 494: Comment noted.



From: dmuenchphoto@aol.com
Posted At: Friday, March 30, 2007 2:12 PM
Conversation: matl proposal for the development of wind farms
Posted To: MATL
Subject: matl proposal for the development of wind farms

Comments 495 - 500

To Whom It May Concern:

I join all those other Montanans who are concerned about the transmission line proposed by MATL. 495
Because we are so eager to prevent oil and gas development in inappropriate places (and because we celebrate the protection of the Rocky Mountain Front), we may also be overeager to jump on bandwagons that SEEM to provide for clean energy. But habitat fragmentation is not clean. Economic 496
disadvantage to ordinary citizens in order to provide windfall profits for heavily subsidized large corporations is not clean. The devaluing of property that has long held Montana's open space and clear 497
views as one of its values is not clean. Wind farms on migratory bird flyways kills many. This is not 498
clean.

499 We must know exactly what we are doing, who it benefits, who it hurts, what the long-term impacts are, whether the trade-offs come anywhere near being worth the development before we jump into developing anything. Haven't we, by now, had enough of greed in the name of doing good? How gullible are we, when money is waved in our faces.

500 I would ask the DEQ guarantee full public participation in siting decisions and that we pay careful attention to keeping industrial-scale wind farms and transmission lines near I-15, well east of the Rocky Mountain Front, to protect the viewshed of some of the most spectacular scenery in America. We don't have a whole lot left. Couldn't we do the right thing here, from the beginning?

Ruth Rudner-Muench, Harrison, Montana

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5/8/2007

Response 495: Comment noted.

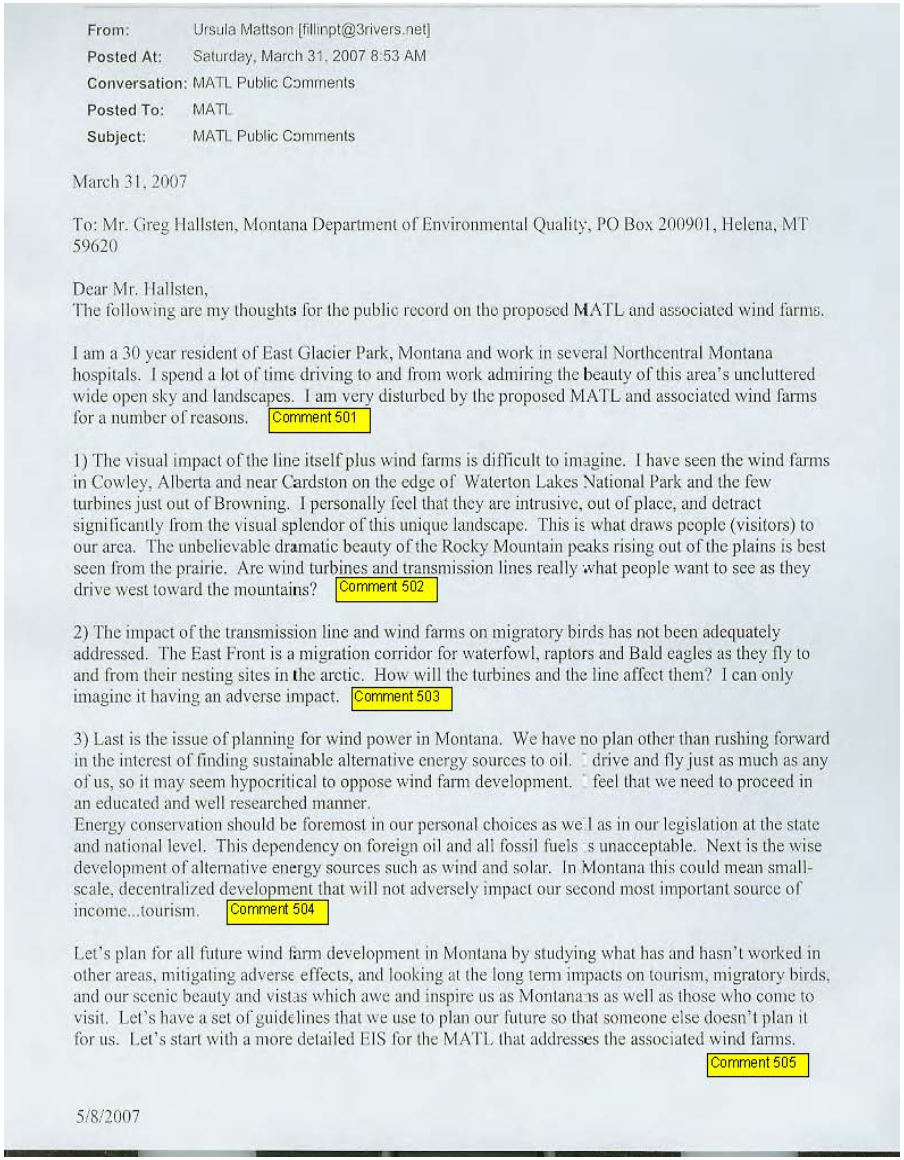
Response 496: Comment noted.

Response 497: Comment noted.

Response 498: The range of bird mortalities associated with wind farm development is indicated in the revised discussion of cumulative impacts (see Section 4.9).

Response 499: Costs and risks of the proposed MATL line to Montana are discussed in the draft EIS. The benefits and costs of the project to Montana are discussed in Sections 1.2 and 3.13. Potential impacts to Montana customers are discussed in Section 3.13.

Response 500: See response to comment 492.



From: Ursula Mattson [fillinpt@3rivers.net]
Posted At: Saturday, March 31, 2007 8:53 AM
Conversation: MATL Public Comments
Posted To: MATL
Subject: MATL Public Comments

March 31, 2007

To: Mr. Greg Hallsten, Montana Department of Environmental Quality, PO Box 200901, Helena, MT 59620

Dear Mr. Hallsten,
The following are my thoughts for the public record on the proposed MATL and associated wind farms.

I am a 30 year resident of East Glacier Park, Montana and work in several Northcentral Montana hospitals. I spend a lot of time driving to and from work admiring the beauty of this area's uncluttered wide open sky and landscapes. I am very disturbed by the proposed MATL and associated wind farms for a number of reasons. Comment 501

1) The visual impact of the line itself plus wind farms is difficult to imagine. I have seen the wind farms in Cowley, Alberta and near Cardston on the edge of Waterton Lakes National Park and the few turbines just out of Browning. I personally feel that they are intrusive, out of place, and detract significantly from the visual splendor of this unique landscape. This is what draws people (visitors) to our area. The unbelievable dramatic beauty of the Rocky Mountain peaks rising out of the plains is best seen from the prairie. Are wind turbines and transmission lines really what people want to see as they drive west toward the mountains? Comment 502

2) The impact of the transmission line and wind farms on migratory birds has not been adequately addressed. The East Front is a migration corridor for waterfowl, raptors and Bald eagles as they fly to and from their nesting sites in the arctic. How will the turbines and the line affect them? I can only imagine it having an adverse impact. Comment 503

3) Last is the issue of planning for wind power in Montana. We have no plan other than rushing forward in the interest of finding sustainable alternative energy sources to oil. I drive and fly just as much as any of us, so it may seem hypocritical to oppose wind farm development. I feel that we need to proceed in an educated and well researched manner.
Energy conservation should be foremost in our personal choices as well as in our legislation at the state and national level. This dependency on foreign oil and all fossil fuels is unacceptable. Next is the wise development of alternative energy sources such as wind and solar. In Montana this could mean small-scale, decentralized development that will not adversely impact our second most important source of income...tourism. Comment 504

Let's plan for all future wind farm development in Montana by studying what has and hasn't worked in other areas, mitigating adverse effects, and looking at the long term impacts on tourism, migratory birds, and our scenic beauty and vistas which awe and inspire us as Montanans as well as those who come to visit. Let's have a set of guidelines that we use to plan our future so that someone else doesn't plan it for us. Let's start with a more detailed EIS for the MATL that addresses the associated wind farms.
Comment 505

5/8/2007

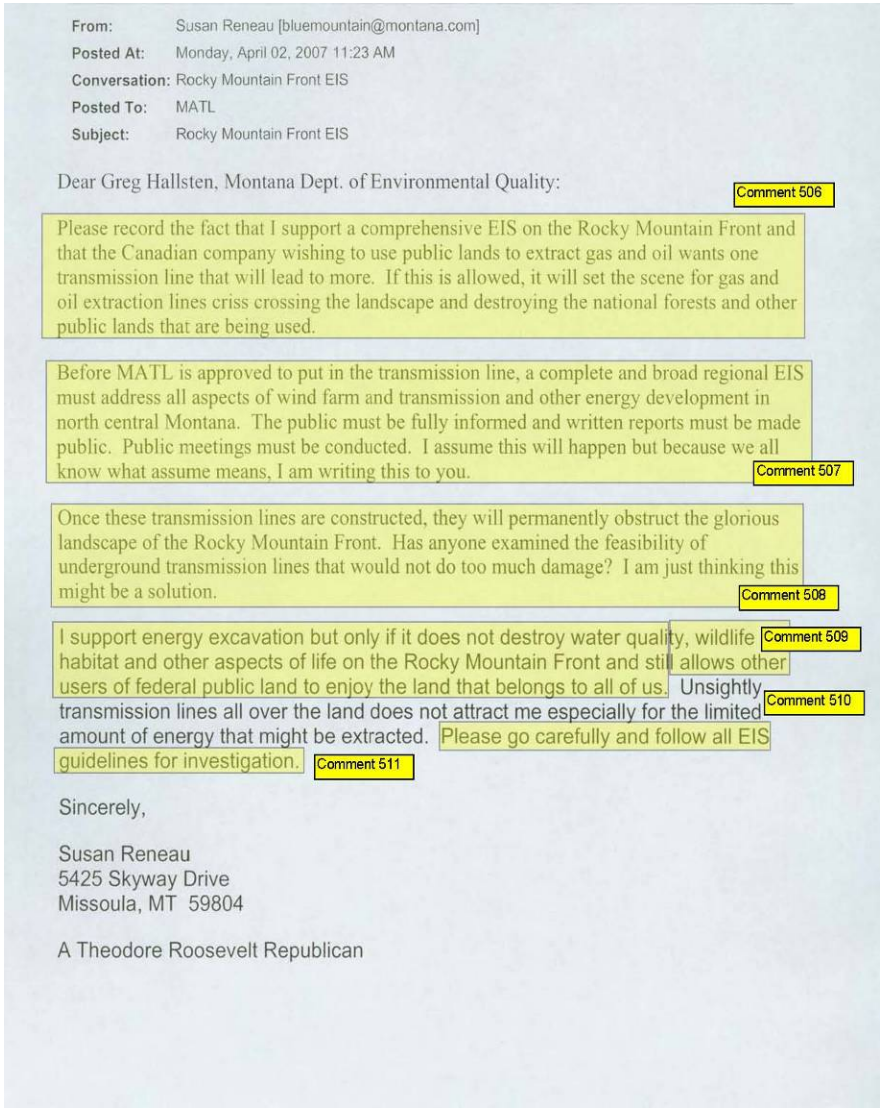
Response 501: Comment noted.

Response 502: Comment noted. The discussion of cumulative impacts for the proposed MATL transmission line has been expanded in Chapter 4 of this document.

Response 503: The range of bird mortalities associated with wind farm development is indicated in the revised discussion of cumulative impacts (see Section 4.9).

Response 504: Comment noted.

Response 505: Comment noted. Guidelines are addressed in response to comments 239 to 241.



From: Susan Reneau [bluemountain@montana.com]
Posted At: Monday, April 02, 2007 11:23 AM
Conversation: Rocky Mountain Front EIS
Posted To: MATL
Subject: Rocky Mountain Front EIS

Dear Greg Hallsten, Montana Dept. of Environmental Quality:

Comment 506

Please record the fact that I support a comprehensive EIS on the Rocky Mountain Front and that the Canadian company wishing to use public lands to extract gas and oil wants one transmission line that will lead to more. If this is allowed, it will set the scene for gas and oil extraction lines criss crossing the landscape and destroying the national forests and other public lands that are being used.

Before MATL is approved to put in the transmission line, a complete and broad regional EIS must address all aspects of wind farm and transmission and other energy development in north central Montana. The public must be fully informed and written reports must be made public. Public meetings must be conducted. I assume this will happen but because we all know what assume means, I am writing this to you.

Comment 507

Once these transmission lines are constructed, they will permanently obstruct the glorious landscape of the Rocky Mountain Front. Has anyone examined the feasibility of underground transmission lines that would not do too much damage? I am just thinking this might be a solution.

Comment 508

I support energy excavation but only if it does not destroy water quality, wildlife habitat and other aspects of life on the Rocky Mountain Front and still allows other users of federal public land to enjoy the land that belongs to all of us. Unsightly transmission lines all over the land does not attract me especially for the limited amount of energy that might be extracted. Please go carefully and follow all EIS guidelines for investigation.

Comment 509

Comment 510

Comment 511

Sincerely,

Susan Reneau
5425 Skyway Drive
Missoula, MT 59804

A Theodore Roosevelt Republican

Response 506: MATL has proposed to build a transmission line, not to develop oil and gas. The agencies do not have regulatory authority over oil and gas development and cannot speculate on future development or prepare the EIS requested in the comment.

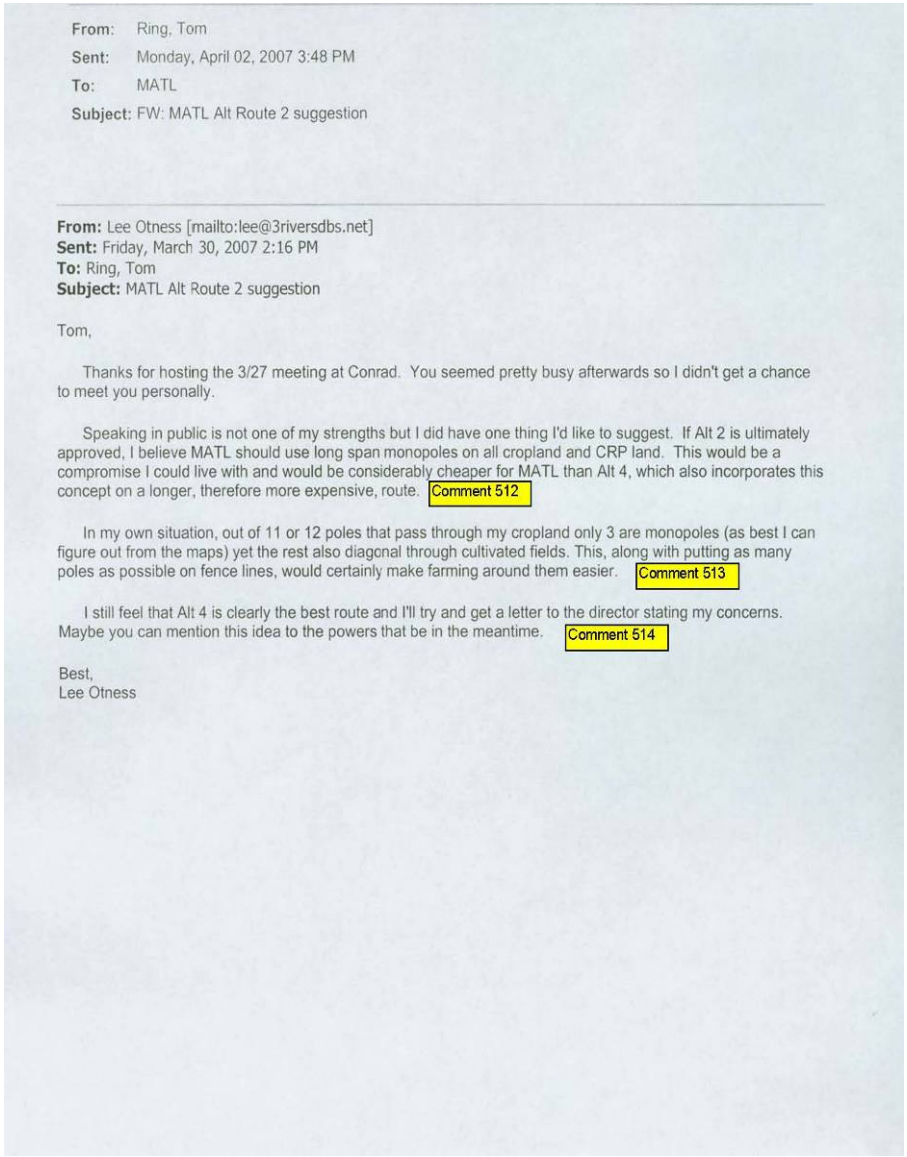
Response 507: See response to comment 24.

Response 508: See Section 2.7 for discussion on building the MATL line underground. This alternative was considered but dismissed.

Response 509: Comment noted. Water quality should be protected with implementation of storm water controls required by DEQ. Wildlife and wildlife habitat could be adversely affected by construction of the transmission line and wind farms. See the discussion of wildlife impacts in sections 3.8, 3.10, and the expanded cumulative impacts analysis in Sections 4.9 and 4.11.

Response 510: Comment noted.

Response 511: The agencies have followed the requirements of the Montana Environmental Policy Act and the National Environmental Policy Act in preparing this EIS.



From: Ring, Tom
Sent: Monday, April 02, 2007 3:48 PM
To: MATL
Subject: FW: MATL Alt Route 2 suggestion

From: Lee Otness [mailto:lee@3riversdbs.net]
Sent: Friday, March 30, 2007 2:16 PM
To: Ring, Tom
Subject: MATL Alt Route 2 suggestion

Tom,

Thanks for hosting the 3/27 meeting at Conrad. You seemed pretty busy afterwards so I didn't get a chance to meet you personally.

Speaking in public is not one of my strengths but I did have one thing I'd like to suggest. If Alt 2 is ultimately approved, I believe MATL should use long span monopoles on all cropland and CRP land. This would be a compromise I could live with and would be considerably cheaper for MATL than Alt 4, which also incorporates this concept on a longer, therefore more expensive, route. Comment 512

In my own situation, out of 11 or 12 poles that pass through my cropland only 3 are monopoles (as best I can figure out from the maps) yet the rest also diagonal through cultivated fields. This, along with putting as many poles as possible on fence lines, would certainly make farming around them easier. Comment 513

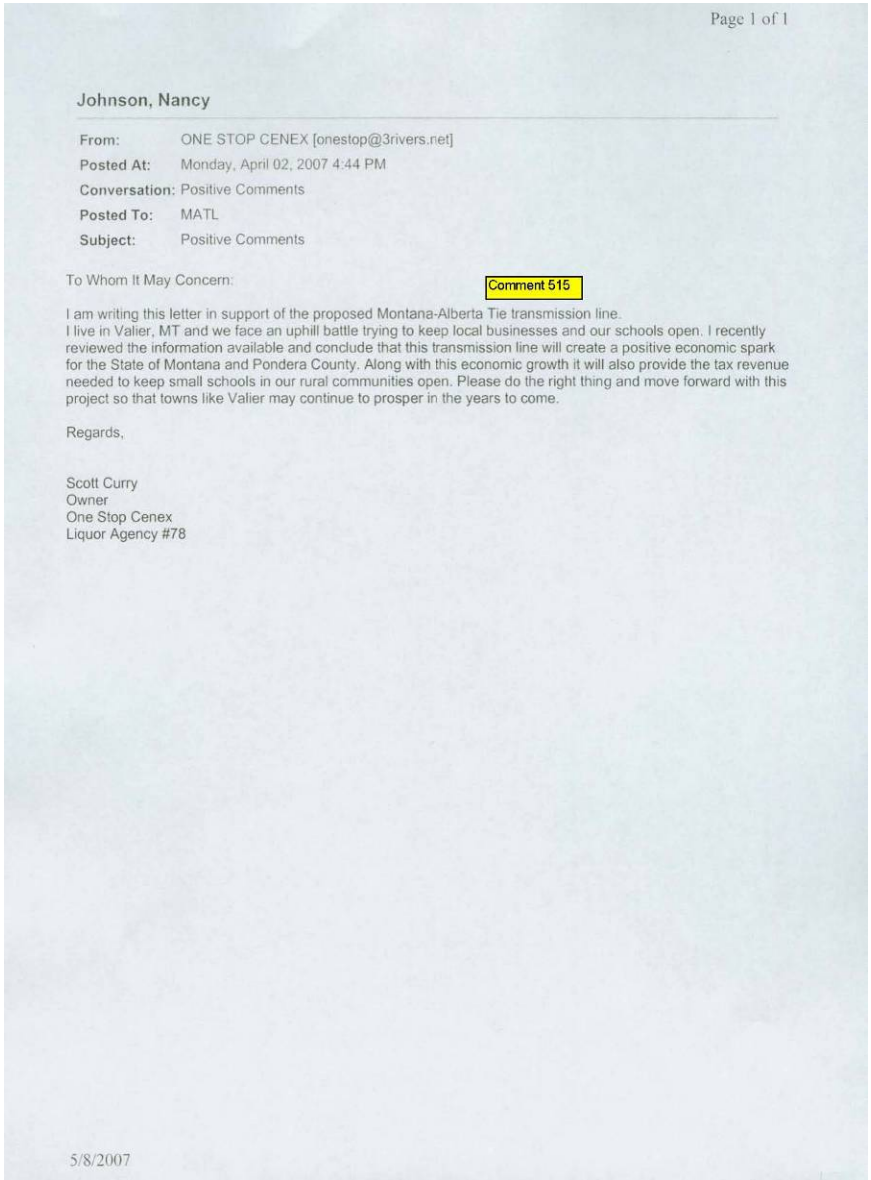
I still feel that Alt 4 is clearly the best route and I'll try and get a letter to the director stating my concerns. Maybe you can mention this idea to the powers that be in the meantime. Comment 514

Best,
Lee Otness

Response 512: Comment noted.

Response 513: Comment noted. A slight realignment has been suggested on Mr. Otness' land and land just to the northwest of his property. See the discussion in Sections 2.6 and 3.16 for more information.

Response 514: Comment noted.



Page 1 of 1

Johnson, Nancy

From: ONE STOP CENEX [onestop@3rivers.net]
Posted At: Monday, April 02, 2007 4:44 PM
Conversation: Positive Comments
Posted To: MATL
Subject: Positive Comments

To Whom It May Concern:

Comment 515

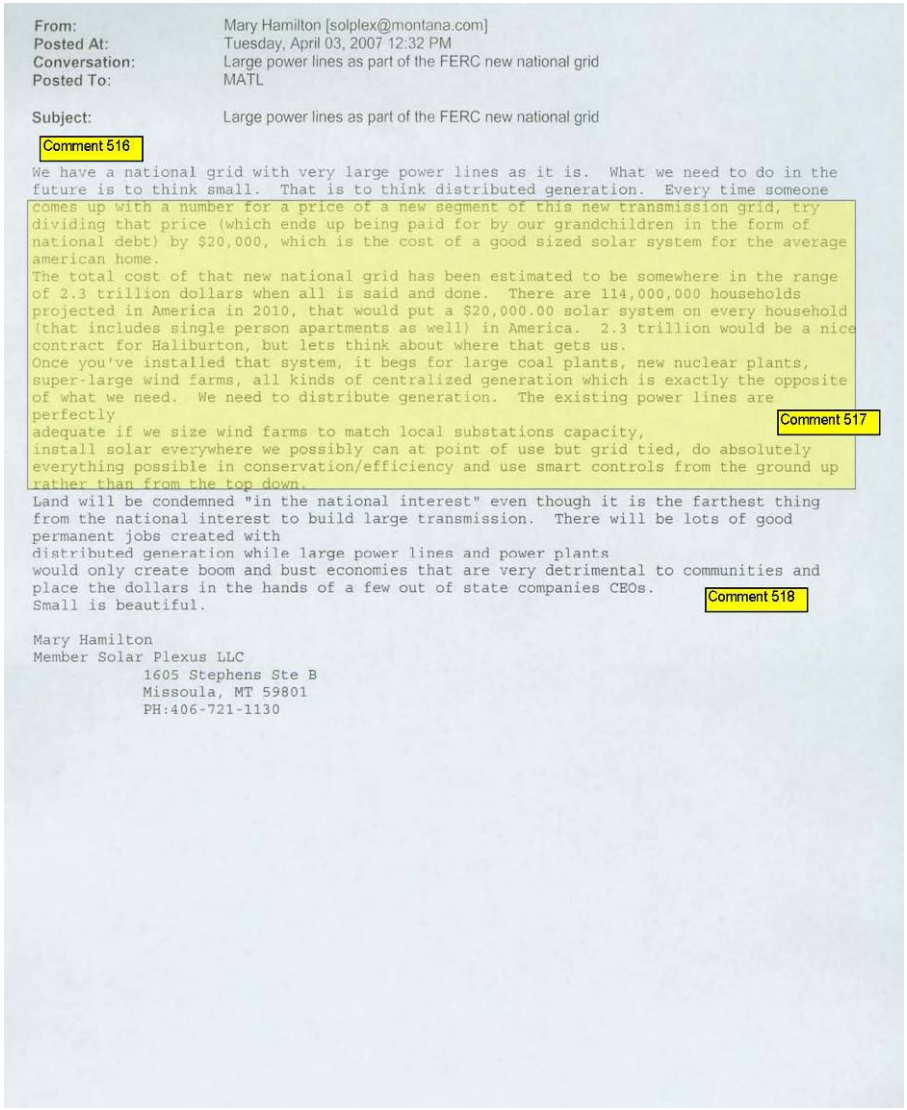
I am writing this letter in support of the proposed Montana-Alberta Tie transmission line.
I live in Valier, MT and we face an uphill battle trying to keep local businesses and our schools open. I recently reviewed the information available and conclude that this transmission line will create a positive economic spark for the State of Montana and Pondera County. Along with this economic growth it will also provide the tax revenue needed to keep small schools in our rural communities open. Please do the right thing and move forward with this project so that towns like Valier may continue to prosper in the years to come.

Regards,

Scott Curry
Owner
One Stop Cenex
Liquor Agency #78

5/8/2007

Response 515: Comment noted. See the revised discussion of socioeconomic impacts in Section 3.13.



From: Mary Hamilton [solplex@montana.com]
Posted At: Tuesday, April 03, 2007 12:32 PM
Conversation: Large power lines as part of the FERC new national grid
Posted To: MATL

Subject: Large power lines as part of the FERC new national grid

Comment 516

We have a national grid with very large power lines as it is. What we need to do in the future is to think small. That is to think distributed generation. Every time someone comes up with a number for a price of a new segment of this new transmission grid, try dividing that price (which ends up being paid for by our grandchildren in the form of national debt) by $20,000, which is the cost of a good sized solar system for the average american home.
The total cost of that new national grid has been estimated to be somewhere in the range of 2.3 trillion dollars when all is said and done. There are 114,000,000 households projected in America in 2010, that would put a $20,000.00 solar system on every household (that includes single person apartments as well) in America. 2.3 trillion would be a nice contract for Haliburton, but lets think about where that gets us.
Once you've installed that system, it begs for large coal plants, new nuclear plants, super-large wind farms, all kinds of centralized generation which is exactly the opposite of what we need. We need to distribute generation. The existing power lines are perfectly
adequate if we size wind farms to match local substations capacity,
install solar everywhere we possibly can at point of use but grid tied, do absolutely everything possible in conservation/efficiency and use smart controls from the ground up rather than from the top down.

Comment 517

Land will be condemned "in the national interest" even though it is the farthest thing from the national interest to build large transmission. There will be lots of good permanent jobs created with
distributed generation while large power lines and power plants
would only create boom and bust economies that are very detrimental to communities and place the dollars in the hands of a few out of state companies CEOs.
Small is beautiful.

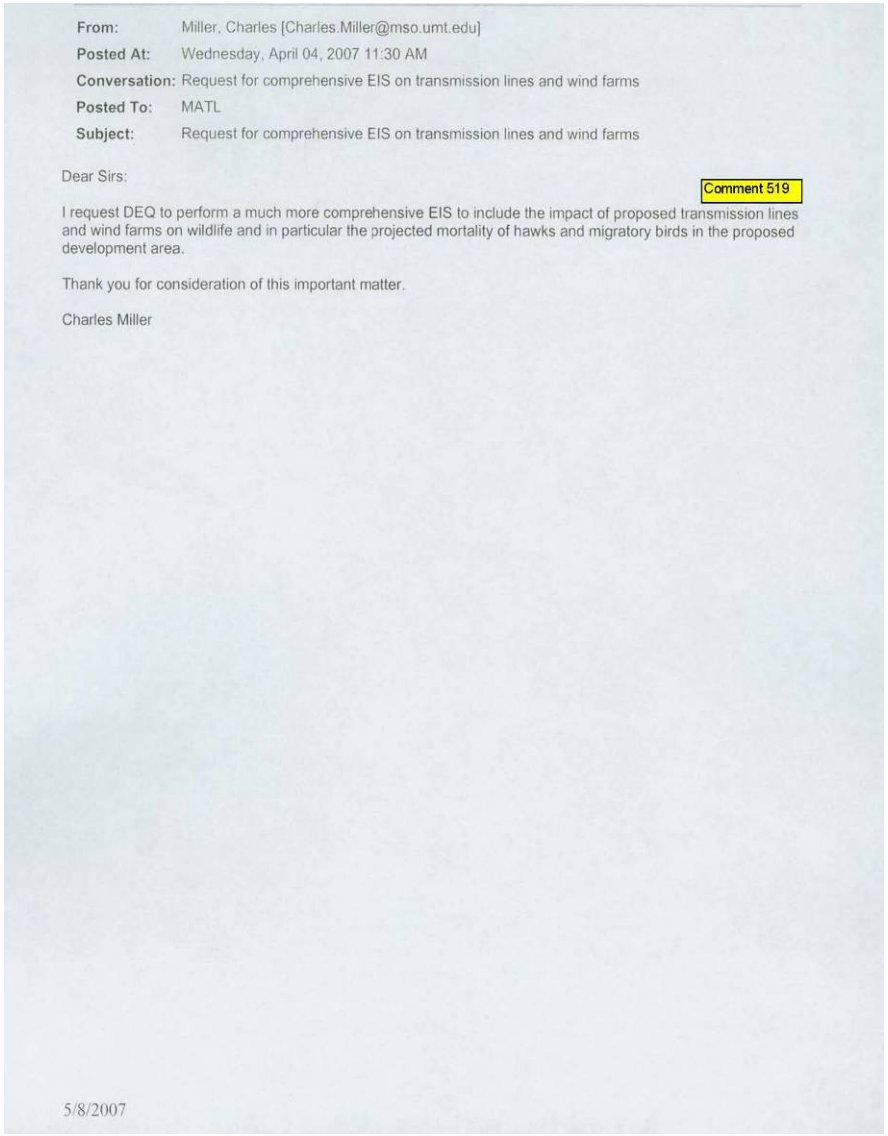
Comment 518

Mary Hamilton
Member Solar Plexus LLC
1605 Stephens Ste B
Missoula, MT 59801
PH:406-721-1130

Response 516: Comment noted. Distributed generation would not meet the needs of the proposed line.

Response 517: Comment noted. The proposed project would be financed privately, and would not contribute to the national debt.

Response 518: Comment noted.



From: Miller, Charles [Charles.Miller@mso.umt.edu]
Posted At: Wednesday, April 04, 2007 11:30 AM
Conversation: Request for comprehensive EIS on transmission lines and wind farms
Posted To: MATL
Subject: Request for comprehensive EIS on transmission lines and wind farms

Dear Sirs:

Comment 519

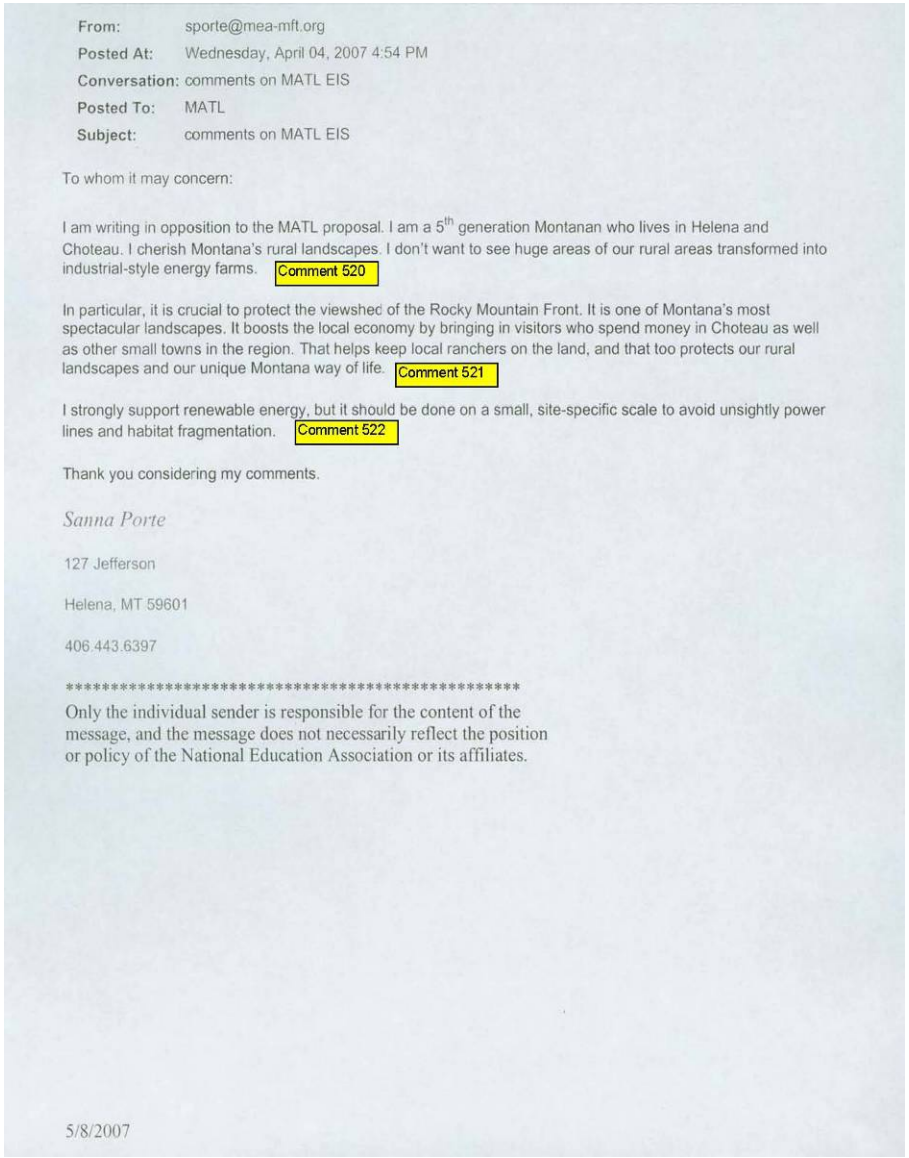
I request DEQ to perform a much more comprehensive EIS to include the impact of proposed transmission lines and wind farms on wildlife and in particular the projected mortality of hawks and migratory birds in the proposed development area.

Thank you for consideration of this important matter.

Charles Miller

5/8/2007

Response 519: The developers of wind farms near the proposed line have not revealed their plans yet. Wildlife and wildlife habitat could be adversely affected by construction of the transmission line and wind farms. DEQ has requested this information, but does not have regulatory authority over wind farms and cannot demand the information. See the discussion of wildlife impacts resulting from the transmission line in sections 3.8, 3.10, and the expanded cumulative impacts analysis in Sections 4.9 and 4.11.



From: sporte@mea-mft.org
Posted At: Wednesday, April 04, 2007 4:54 PM
Conversation: comments on MATL EIS
Posted To: MATL
Subject: comments on MATL EIS

To whom it may concern:

I am writing in opposition to the MATL proposal. I am a 5th generation Montanan who lives in Helena and Choteau. I cherish Montana's rural landscapes. I don't want to see huge areas of our rural areas transformed into industrial-style energy farms. Comment 520

In particular, it is crucial to protect the viewshed of the Rocky Mountain Front. It is one of Montana's most spectacular landscapes. It boosts the local economy by bringing in visitors who spend money in Choteau as well as other small towns in the region. That helps keep local ranchers on the land, and that too protects our rural landscapes and our unique Montana way of life. Comment 521

I strongly support renewable energy, but it should be done on a small, site-specific scale to avoid unsightly power lines and habitat fragmentation. Comment 522

Thank you considering my comments.

Sanna Porte

127 Jefferson

Helena, MT 59601

406.443.6397

****

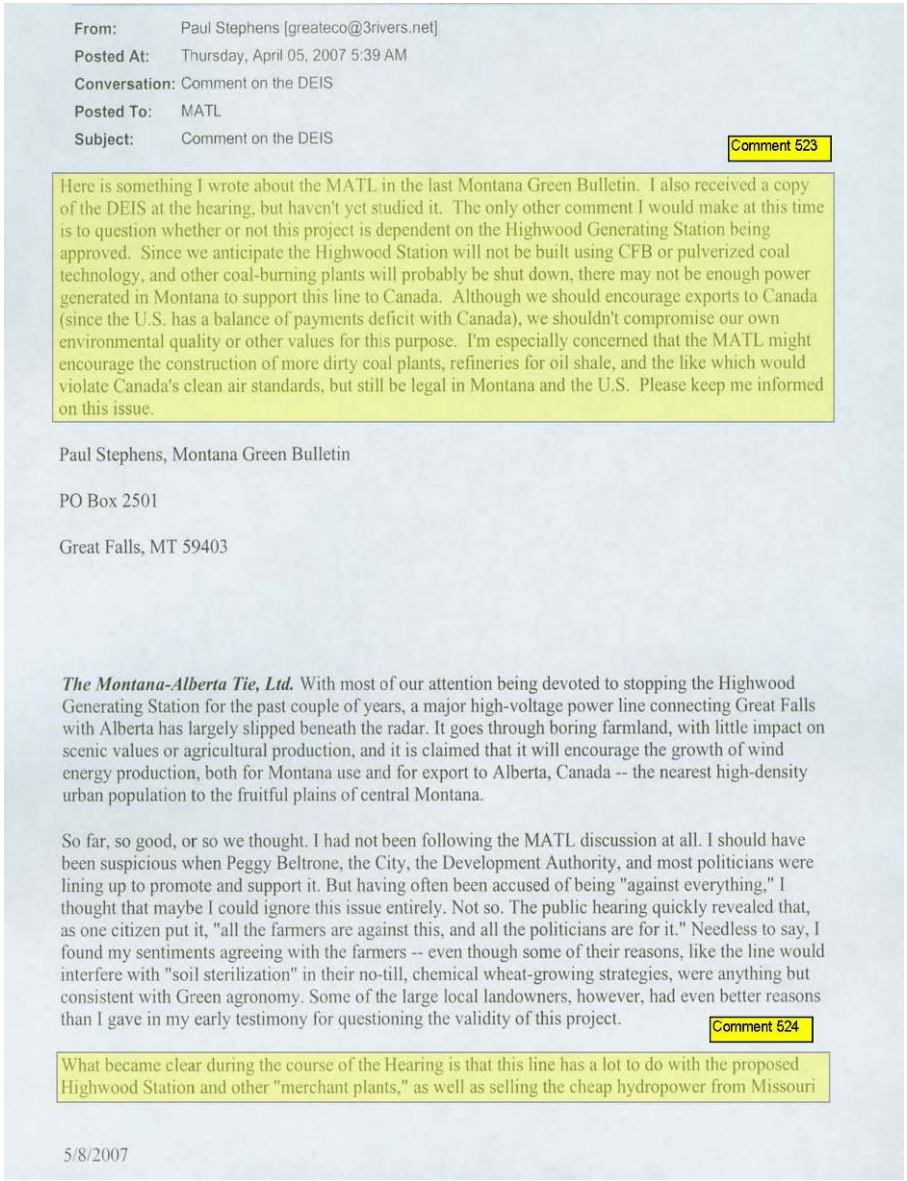
Only the individual sender is responsible for the content of the message, and the message does not necessarily reflect the position or policy of the National Education Association or its affiliates.

5/8/2007

Response 520: Comment noted. The agencies have received no applications for other transmission lines near the proposed line and are not aware of any plans for other transmission lines near the proposed line. If other applications are received for transmission lines in the area, the subsequent environmental review will disclose the impacts.

Response 521: Comment noted. See Chapter 4. The agencies administer no permits specifically for wind farms as energy facilities. Persons interested in protecting the viewshed of the Rocky Mountain Front would need to work with individual developers as wind farms are sited and planned.

Response 522: Comment noted. To generate the same amount of power (600 MW that would include 300 MW south to north and 300 MW north to south) as would be shipped on the proposed transmission line would require 9,230 small turbines (65 KW each) as opposed to 400 turbines, each producing 1.5 MW. This would require more disturbance of land, possibly more fragmentation of habitat and potentially have greater visual impacts as the faster turning small turbines would have to be more widely distributed. In addition, if the same amount of power would be generated, there would still need to be additional transmission lines constructed to handle the additional generation even if smaller turbines would be built.



From: Paul Stephens [greateco@3rivers.net]
Posted At: Thursday, April 05, 2007 5:39 AM
Conversation: Comment on the DEIS
Posted To: MATL
Subject: Comment on the DEIS

Comment 523

Here is something I wrote about the MATL in the last Montana Green Bulletin. I also received a copy of the DEIS at the hearing, but haven't yet studied it. The only other comment I would make at this time is to question whether or not this project is dependent on the Highwood Generating Station being approved. Since we anticipate the Highwood Station will not be built using CFB or pulverized coal technology, and other coal-burning plants will probably be shut down, there may not be enough power generated in Montana to support this line to Canada. Although we should encourage exports to Canada (since the U.S. has a balance of payments deficit with Canada), we shouldn't compromise our own environmental quality or other values for this purpose. I'm especially concerned that the MATL might encourage the construction of more dirty coal plants, refineries for oil shale, and the like which would violate Canada's clean air standards, but still be legal in Montana and the U.S. Please keep me informed on this issue.

Paul Stephens, Montana Green Bulletin

PO Box 2501

Great Falls, MT 59403

The Montana-Alberta Tie, Ltd. With most of our attention being devoted to stopping the Highwood Generating Station for the past couple of years, a major high-voltage power line connecting Great Falls with Alberta has largely slipped beneath the radar. It goes through boring farmland, with little impact on scenic values or agricultural production, and it is claimed that it will encourage the growth of wind energy production, both for Montana use and for export to Alberta, Canada -- the nearest high-density urban population to the fruitful plains of central Montana.

So far, so good, or so we thought. I had not been following the MATL discussion at all. I should have been suspicious when Peggy Beltrone, the City, the Development Authority, and most politicians were lining up to promote and support it. But having often been accused of being "against everything," I thought that maybe I could ignore this issue entirely. Not so. The public hearing quickly revealed that, as one citizen put it, "all the farmers are against this, and all the politicians are for it." Needless to say, I found my sentiments agreeing with the farmers -- even though some of their reasons, like the line would interfere with "soil sterilization" in their no-till, chemical wheat-growing strategies, were anything but consistent with Green agronomy. Some of the large local landowners, however, had even better reasons than I gave in my early testimony for questioning the validity of this project.

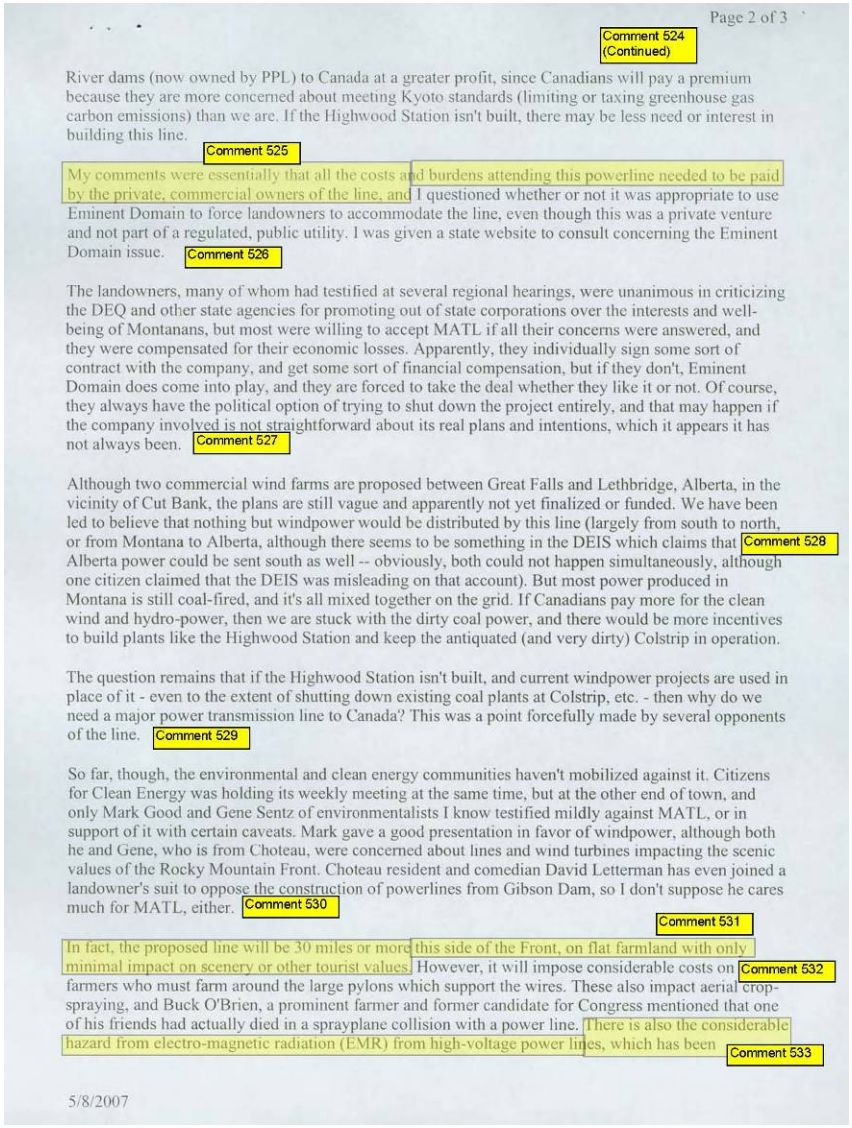
Comment 524

What became clear during the course of the Hearing is that this line has a lot to do with the proposed Highwood Station and other "merchant plants," as well as selling the cheap hydropower from Missouri

5/8/2007

Response 523: Because MATL has no firm contracts to ship power from the Highwood Generating Station and because power from the Highwood Generating Station would be used to satisfy the needs of members of the electric generating cooperatives in south-central Montana as well as the City of Great Falls, the agencies do not believe that the Highwood Generating Station is dependent on the MATL line. The agencies recognize that it is possible for power from the Highwood Generating Station to be shipped on the MATL line when the plant produces more power than the owners can use and short term capacity is available on the MATL line. See response to comment 25 that discusses the need for the project.

Response 524: See response to comment 523.



Page 2 of 3

Comment 524 (Continued)

River dams (now owned by PPL) to Canada at a greater profit, since Canadians will pay a premium because they are more concerned about meeting Kyoto standards (limiting or taxing greenhouse gas carbon emissions) than we are. If the Highwood Station isn't built, there may be less need or interest in building this line.

Comment 525

My comments were essentially that all the costs and burdens attending this powerline needed to be paid by the private, commercial owners of the line, and I questioned whether or not it was appropriate to use Eminent Domain to force landowners to accommodate the line, even though this was a private venture and not part of a regulated, public utility. I was given a state website to consult concerning the Eminent Domain issue.

Comment 526

The landowners, many of whom had testified at several regional hearings, were unanimous in criticizing the DEQ and other state agencies for promoting out of state corporations over the interests and well-being of Montanans, but most were willing to accept MATL if all their concerns were answered, and they were compensated for their economic losses. Apparently, they individually sign some sort of contract with the company, and get some sort of financial compensation, but if they don't, Eminent Domain does come into play, and they are forced to take the deal whether they like it or not. Of course, they always have the political option of trying to shut down the project entirely, and that may happen if the company involved is not straightforward about its real plans and intentions, which it appears it has not always been.

Comment 527

Although two commercial wind farms are proposed between Great Falls and Lethbridge, Alberta, in the vicinity of Cut Bank, the plans are still vague and apparently not yet finalized or funded. We have been led to believe that nothing but windpower would be distributed by this line (largely from south to north, or from Montana to Alberta, although there seems to be something in the DEIS which claims that Alberta power could be sent south as well -- obviously, both could not happen simultaneously, although one citizen claimed that the DEIS was misleading on that account). But most power produced in Montana is still coal-fired, and it's all mixed together on the grid. If Canadians pay more for the clean wind and hydro-power, then we are stuck with the dirty coal power, and there would be more incentives to build plants like the Highwood Station and keep the antiquated (and very dirty) Colstrip in operation.

Comment 528

The question remains that if the Highwood Station isn't built, and current windpower projects are used in place of it - even to the extent of shutting down existing coal plants at Colstrip, etc. - then why do we need a major power transmission line to Canada? This was a point forcefully made by several opponents of the line.

Comment 529

So far, though, the environmental and clean energy communities haven't mobilized against it. Citizens for Clean Energy was holding its weekly meeting at the same time, but at the other end of town, and only Mark Good and Gene Sentz of environmentalists I know testified mildly against MATL, or in support of it with certain caveats. Mark gave a good presentation in favor of windpower, although both he and Gene, who is from Choteau, were concerned about lines and wind turbines impacting the scenic values of the Rocky Mountain Front. Choteau resident and comedian David Letterman has even joined a landowner's suit to oppose the construction of powerlines from Gibson Dam, so I don't suppose he cares much for MATL, either.

Comment 530

Comment 531

In fact, the proposed line will be 30 miles or more this side of the Front, on flat farmland with only minimal impact on scenery or other tourist values. However, it will impose considerable costs on farmers who must farm around the large pylons which support the wires. These also impact aerial crop-spraying, and Buck O'Brien, a prominent farmer and former candidate for Congress mentioned that one of his friends had actually died in a sprayplane collision with a power line. There is also the considerable hazard from electro-magnetic radiation (EMR) from high-voltage power lines, which has been

Comment 532

Comment 533

5/8/2007

Response 525: Comment noted.

Response 526: See response to comment 8.

Response 527: Comment noted. The agencies are not "promoting" the applicant or proposed project. They are responding to MATL's application as required by law.

Response 528: See response to comment 93 for more information on how the line might be used for short-term transactions when wind generators are not fully using their contracts to ship power. Power can be shipped both ways on a transmission line simultaneously especially if switches are installed at a midpoint substation.

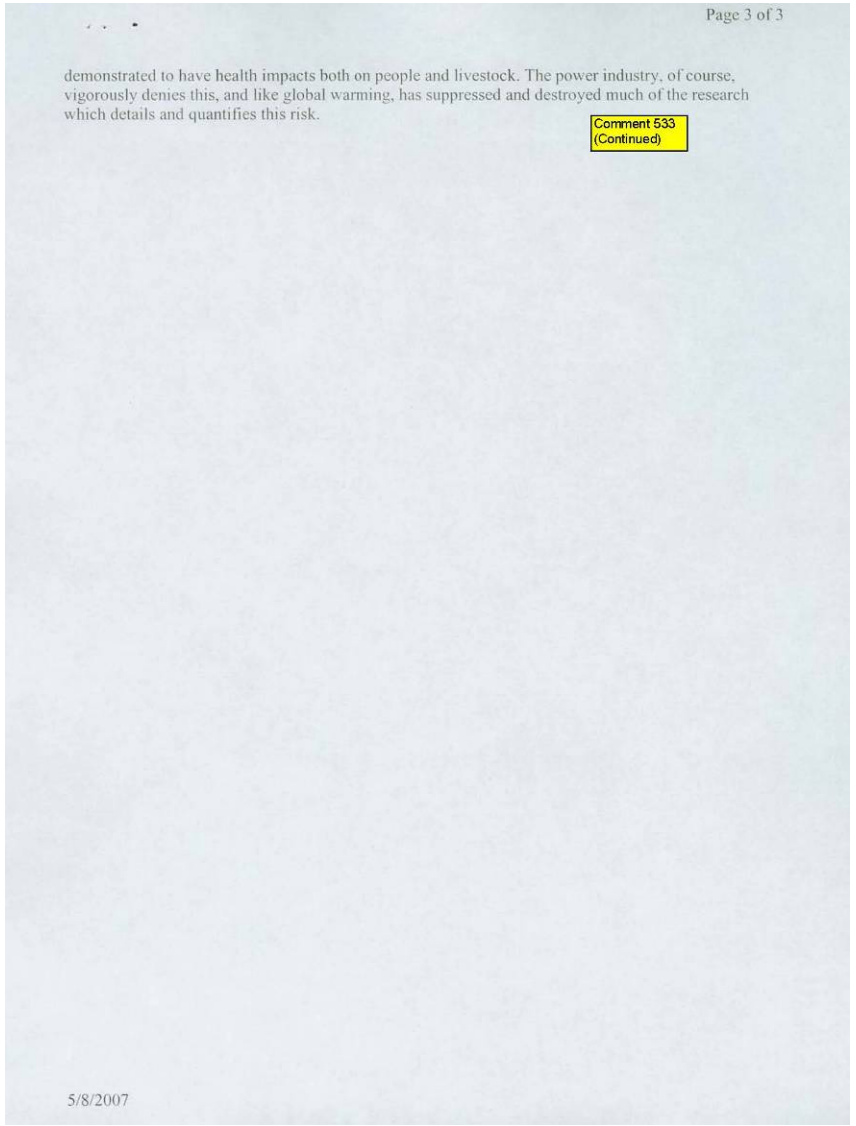
Response 529: The need for this line is stated in Section 1.2.1 is "to connect the Montana electrical transmission grid with the Alberta electrical transmission grid (no direct connection currently exists), provide access to potential markets for new and expanding power generation facilities in the vicinity of the proposed transmission line, and improve transmission access to markets seeking new energy resources." A power line would still be needed to ship power to and from Canada and satisfy the needs of wind generators which have signed contracts with MATL.

Response 530: Comment noted.

Response 531: The draft EIS notes major visual impacts would occur where the line passes in close proximity to houses, roads and recreation sites. In general, the presence of the line in the foreground distance (within ½ mile) from these viewpoints would result in major visual impact. This includes roads traveled by tourists.

Response 532: The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Response 533: Section 3.4.2 describes potential health effects from the transmission line.

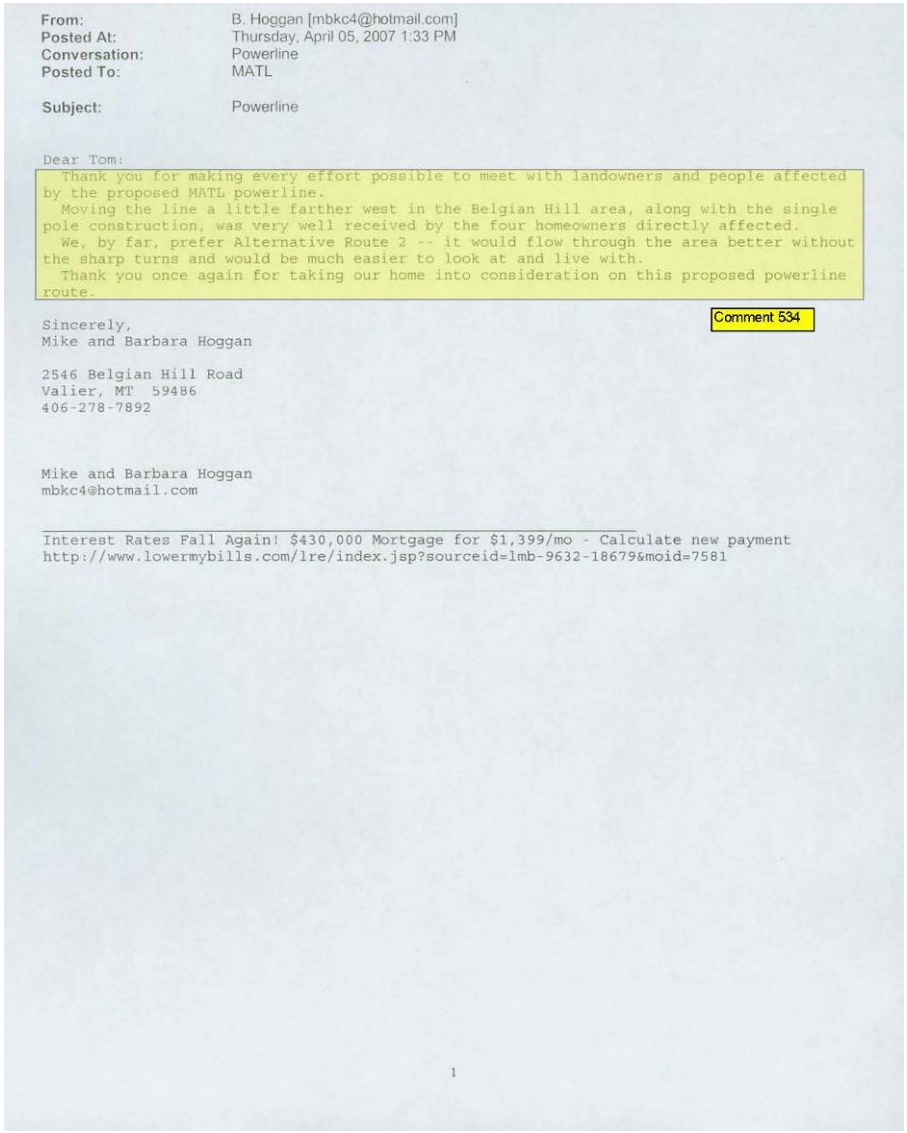


Page 3 of 3

demonstrated to have health impacts both on people and livestock. The power industry, of course, vigorously denies this, and like global warming, has suppressed and destroyed much of the research which details and quantifies this risk.

Comment 533 (Continued)

5/8/2007



From: B. Hoggan [mbkc4@hotmail.com]
Posted At: Thursday, April 05, 2007 1:33 PM
Conversation: Powerline
Posted To: MATL

Subject: Powerline

Dear Tom:

Thank you for making every effort possible to meet with landowners and people affected by the proposed MATL powerline.

Moving the line a little farther west in the Belgian Hill area, along with the single pole construction, was very well received by the four homeowners directly affected.

We, by far, prefer Alternative Route 2 -- it would flow through the area better without the sharp turns and would be much easier to look at and live with.

Thank you once again for taking our home into consideration on this proposed powerline route.

Comment 534

Sincerely,
Mike and Barbara Hoggan

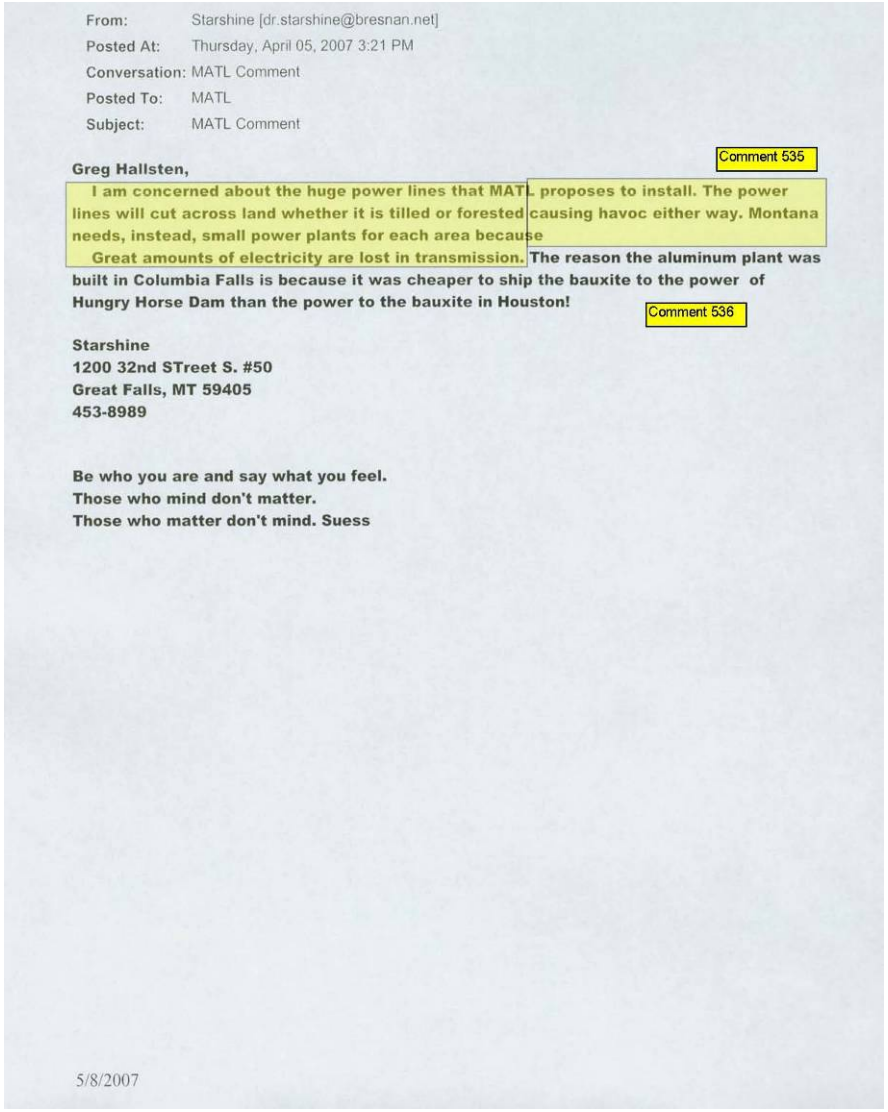
2546 Belgian Hill Road
Valier, MT 59486
406-278-7892

Mike and Barbara Hoggan
mbkc4@hotmail.com

Interest Rates Fall Again! $430,000 Mortgage for $1,399/mo - Calculate new payment
http://www.lowermybills.com/lre/index.jsp?sourceid=lmb-9632-18679&moid=7581

1

Response 534: Comment noted. Moving the line to the west appears to conflict with use of a side-roll irrigation system just south of the irrigation canal on the proposed reroute. Therefore another option in this area is identified in Section 2.6 and the agencies are accepting additional comment on alternatives in this area. Alternative 4 would avoid more homes in this area than the proposed alignment.



From: Starshine [dr.starshine@bresnan.net]
Posted At: Thursday, April 05, 2007 3:21 PM
Conversation: MATL Comment
Posted To: MATL
Subject: MATL Comment

Comment 535

Greg Hallsten,

I am concerned about the huge power lines that MATL proposes to install. The power lines will cut across land whether it is tilled or forested causing havoc either way. Montana needs, instead, small power plants for each area because

Great amounts of electricity are lost in transmission. The reason the aluminum plant was built in Columbia Falls is because it was cheaper to ship the bauxite to the power of Hungry Horse Dam than the power to the bauxite in Houston!

Comment 536

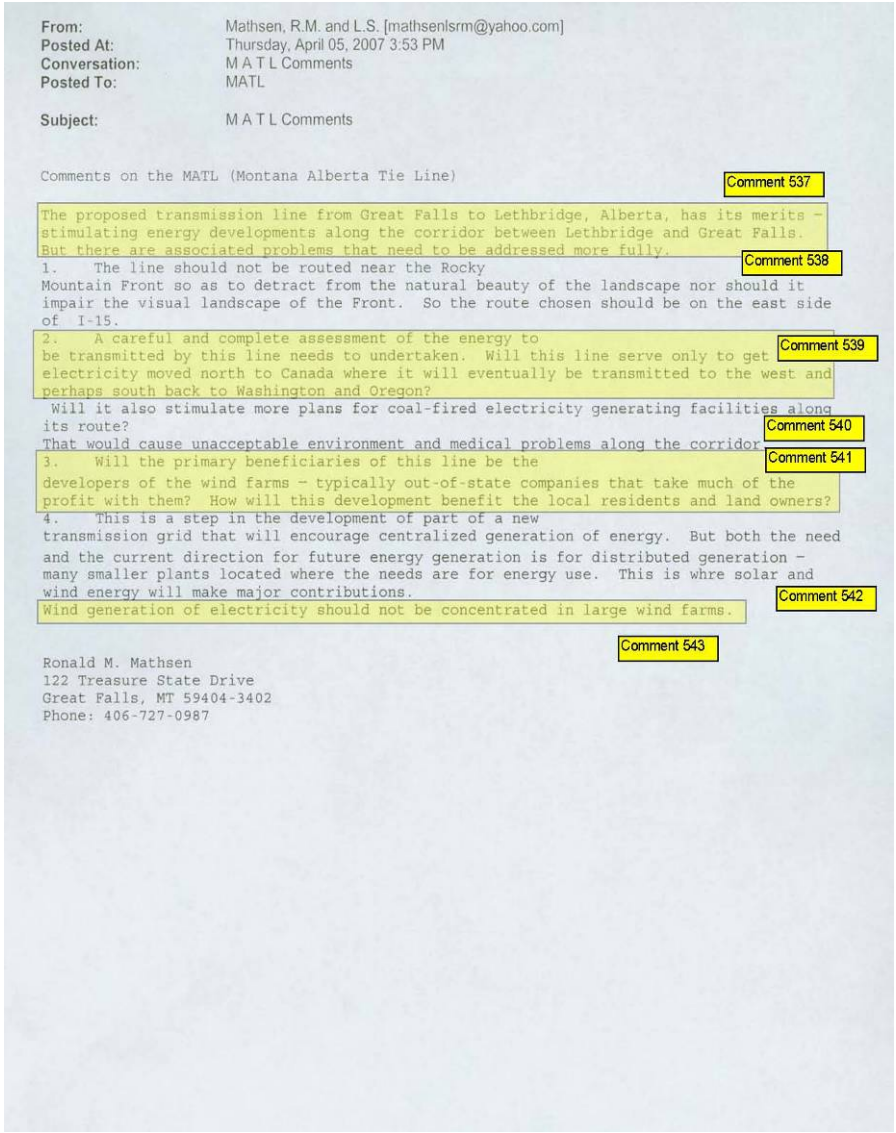
Starshine
1200 32nd STreet S. #50
Great Falls, MT 59405
453-8989

Be who you are and say what you feel.
Those who mind don't matter.
Those who matter don't mind. Suess

5/8/2007

Response 535: Comment noted.

Response 536: Comment noted.



From: Mathsen, R.M. and L.S. [mathsenlsrm@yahoo.com]
Posted At: Thursday, April 05, 2007 3:53 PM
Conversation: M A T L Comments
Posted To: MATL

Subject: M A T L Comments

Comments on the MATL (Montana Alberta Tie Line)

Comment 537

The proposed transmission line from Great Falls to Lethbridge, Alberta, has its merits - stimulating energy developments along the corridor between Lethbridge and Great Falls. But there are associated problems that need to be addressed more fully.

Comment 538

1. The line should not be routed near the Rocky Mountain Front so as to detract from the natural beauty of the landscape nor should it impair the visual landscape of the Front. So the route chosen should be on the east side of I-15.

2. A careful and complete assessment of the energy to be transmitted by this line needs to undertaken. Will this line serve only to get electricity moved north to Canada where it will eventually be transmitted to the west and perhaps south back to Washington and Oregon?

Comment 539

Will it also stimulate more plans for coal-fired electricity generating facilities along its route?

Comment 540

That would cause unacceptable environment and medical problems along the corridor

Comment 541

3. Will the primary beneficiaries of this line be the developers of the wind farms - typically out-of-state companies that take much of the profit with them? How will this development benefit the local residents and land owners?

4. This is a step in the development of part of a new transmission grid that will encourage centralized generation of energy. But both the need and the current direction for future energy generation is for distributed generation - many smaller plants located where the needs are for energy use. This is whre solar and wind energy will make major contributions.

Comment 542

Wind generation of electricity should not be concentrated in large wind farms.

Comment 543

Ronald M. Mathsen
122 Treasure State Drive
Great Falls, MT 59404-3402
Phone: 406-727-0987

Response 537: Comment noted.

Response 538: Comment noted. The line is not routed near the Rocky Mountain Front. See Figure 1.1-1 and response to comment 232.

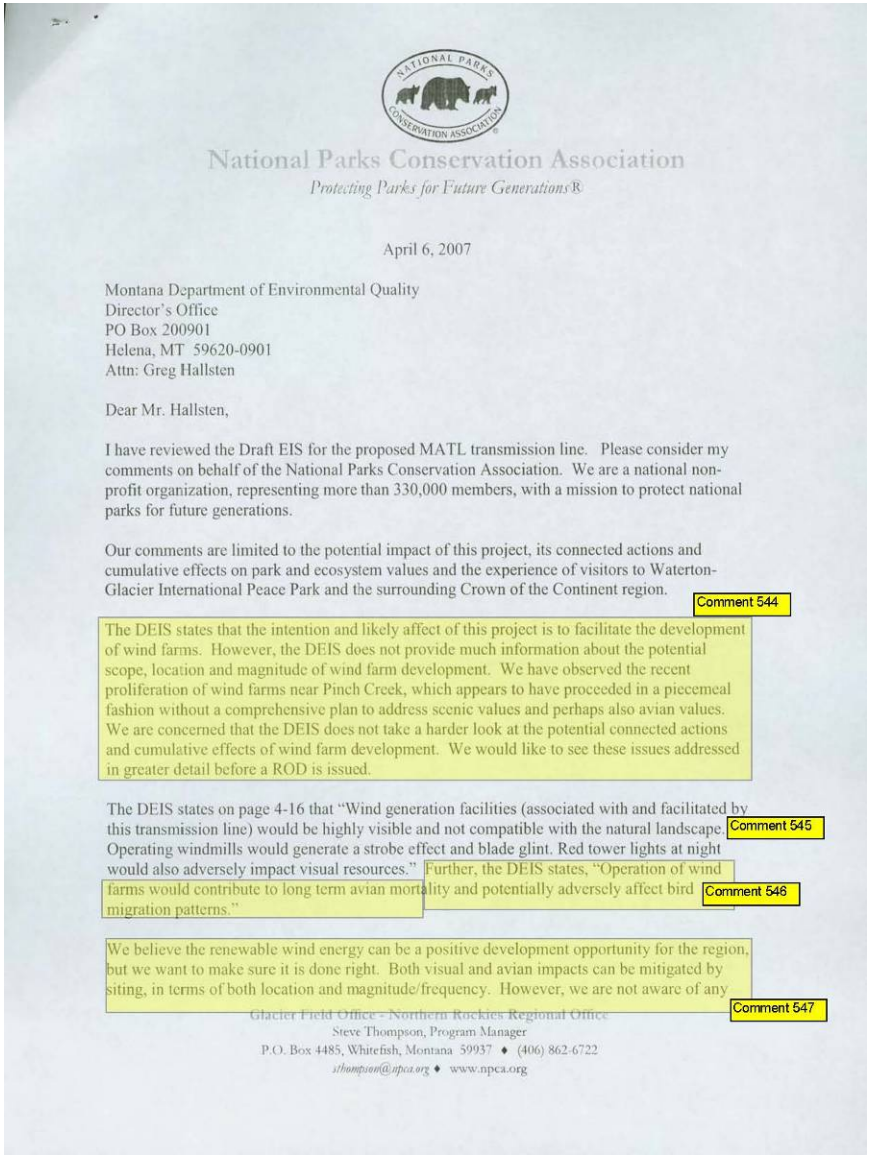
Response 539: See response to comment 529.

Response 540: See response to comment 529. Whether or not unacceptable environmental or medical problems would be stimulated would depend on the design and location of hypothetical future coal-fired electrical generating plants along the route. The agencies are not aware of future plans for coal-fired generation plants that would be dependent upon the MATL line.

Response 541: The primary beneficiaries of this line will be the company that proposes to build this line (Montana Alberta Tie Ltd. owned by Tonbridge Power Inc.), and any wind developers that build wind generators as a result of this line. Those benefits would be realized in the form of any profits made from these ventures. Stockholders of Tonbridge Power Inc. and of wind farm companies could also benefit from stock ownership if these companies are successful. Local residents and land owners are expected to experience benefits and costs from the line. See Section 3.13 for more discussions of the costs and benefits from MATL.

Response 542: Your opinion is noted. Solar power is currently more expensive than wind or coal generated power. While there is much discussion and research being devoted to decentralized power generation, at this time it is not proposed at a scale that would replace the proposed line.

Response 543: Comment noted.



National Parks Conservation Association

Protecting Parks for Future Generations®

April 6, 2007

Montana Department of Environmental Quality
Director's Office
PO Box 200901
Helena, MT 59620-0901
Attn: Greg Hallsten

Dear Mr. Hallsten,

I have reviewed the Draft EIS for the proposed MATL transmission line. Please consider my comments on behalf of the National Parks Conservation Association. We are a national non-profit organization, representing more than 330,000 members, with a mission to protect national parks for future generations.

Our comments are limited to the potential impact of this project, its connected actions and cumulative effects on park and ecosystem values and the experience of visitors to Waterton-Glacier International Peace Park and the surrounding Crown of the Continent region.

Comment 544

The DEIS states that the intention and likely affect of this project is to facilitate the development of wind farms. However, the DEIS does not provide much information about the potential scope, location and magnitude of wind farm development. We have observed the recent proliferation of wind farms near Pinch Creek, which appears to have proceeded in a piecemeal fashion without a comprehensive plan to address scenic values and perhaps also avian values. We are concerned that the DEIS does not take a harder look at the potential connected actions and cumulative effects of wind farm development. We would like to see these issues addressed in greater detail before a ROD is issued.

The DEIS states on page 4-16 that "Wind generation facilities (associated with and facilitated by this transmission line) would be highly visible and not compatible with the natural landscape. Comment 545 Operating windmills would generate a strobe effect and blade glint. Red tower lights at night would also adversely impact visual resources." Further, the DEIS states, "Operation of wind farms would contribute to long term avian mortality and potentially adversely affect bird migration patterns." Comment 546

We believe the renewable wind energy can be a positive development opportunity for the region, but we want to make sure it is done right. Both visual and avian impacts can be mitigated by siting, in terms of both location and magnitude/frequency. However, we are not aware of any Comment 547

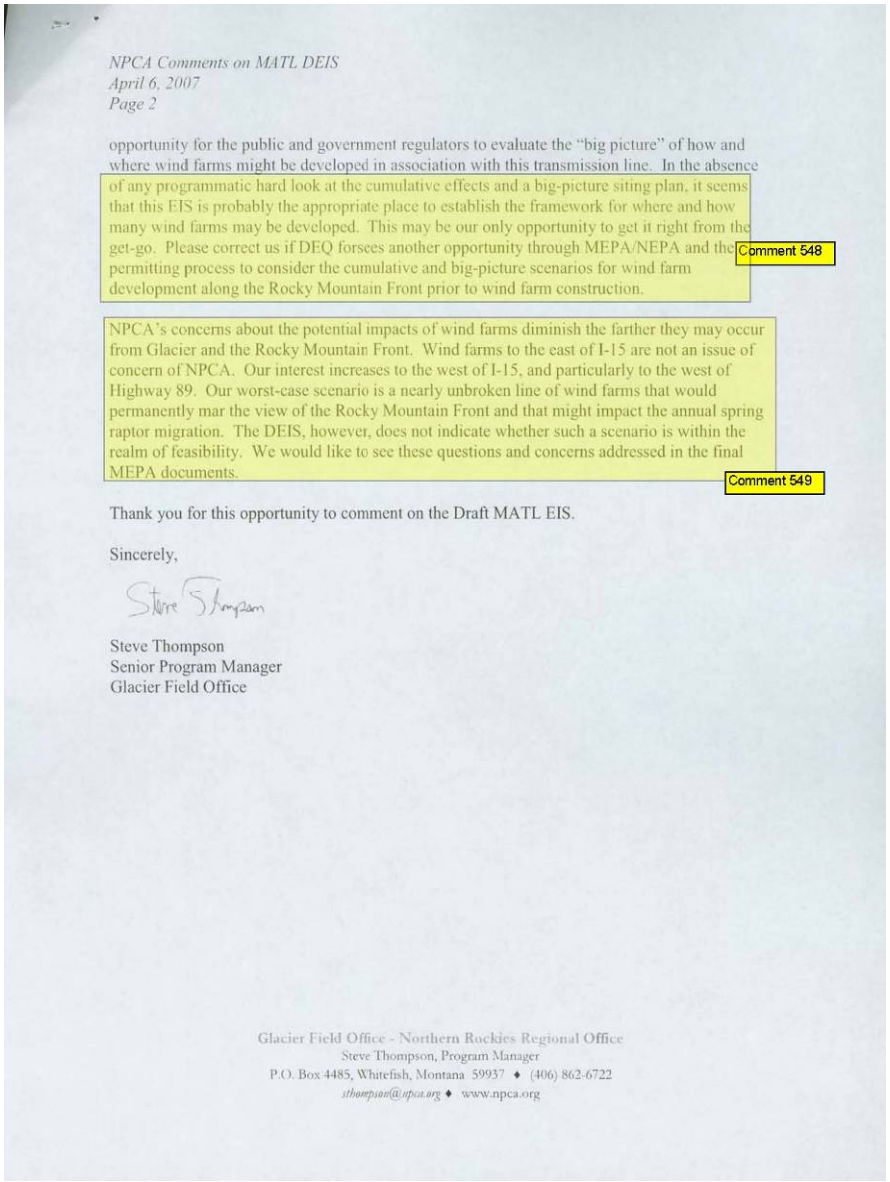
Glacier Field Office - Northern Rockies Regional Office
Steve Thompson, Program Manager
P.O. Box 4485, Whitefish, Montana 59937 ♦ (406) 862-6722
sthompson@npca.org ♦ www.npca.org

Response 544: See the revised discussion of cumulative impacts in Chapter 4.

Response 545: See the revised discussion of cumulative impacts in Chapter 4.

Response 546: Comment noted. See the revised discussion of cumulative impacts in Chapter 4.

Response 547: The agencies have no regulatory authority to site wind farms and little if any regulatory authority to require mitigating measures to control how they would be built. See the revised cumulative impacts discussion in Section 4.16 for more detail on visual impacts of wind farm development. Persons interested in implementation of mitigating measures should work with individual developers as wind farms are sited and planned.



NPCA Comments on MATL DEIS
April 6, 2007
Page 2

opportunity for the public and government regulators to evaluate the "big picture" of how and where wind farms might be developed in association with this transmission line. In the absence of any programmatic hard look at the cumulative effects and a big-picture siting plan, it seems that this EIS is probably the appropriate place to establish the framework for where and how many wind farms may be developed. This may be our only opportunity to get it right from the get-go. Please correct us if DEQ forsees another opportunity through MEPA/NEPA and the permitting process to consider the cumulative and big-picture scenarios for wind farm development along the Rocky Mountain Front prior to wind farm construction.

Comment 548

NPCA's concerns about the potential impacts of wind farms diminish the farther they may occur from Glacier and the Rocky Mountain Front. Wind farms to the east of I-15 are not an issue of concern of NPCA. Our interest increases to the west of I-15, and particularly to the west of Highway 89. Our worst-case scenario is a nearly unbroken line of wind farms that would permanently mar the view of the Rocky Mountain Front and that might impact the annual spring raptor migration. The DEIS, however, does not indicate whether such a scenario is within the realm of feasibility. We would like to see these questions and concerns addressed in the final MEPA documents.

Comment 549

Thank you for this opportunity to comment on the Draft MATL EIS.

Sincerely,

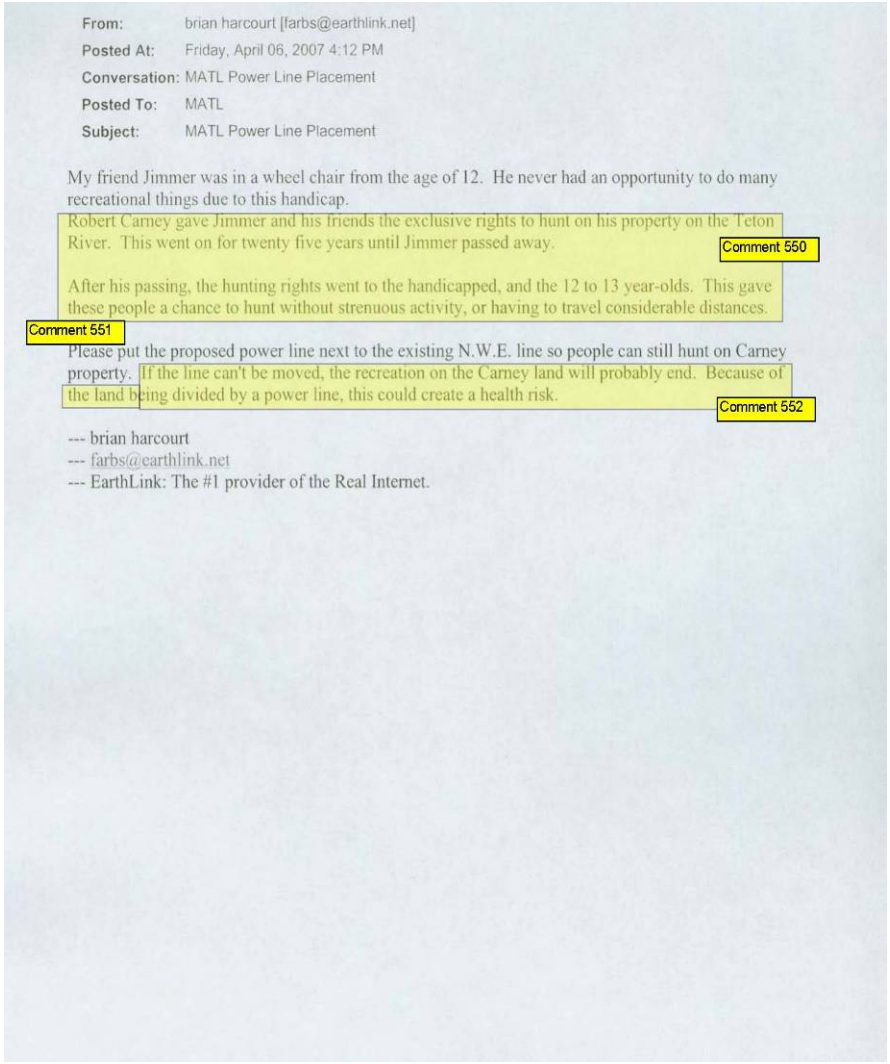
Steve Thompson

Steve Thompson
Senior Program Manager
Glacier Field Office

Glacier Field Office - Northern Rockies Regional Office
Steve Thompson, Program Manager
P.O. Box 4485, Whitefish, Montana 59937 ♦ (406) 862-6722
sthompson@npca.org ♦ www.npca.org

Response 548: See the revised discussion of cumulative impacts in Chapter 4 for further explanation of the types of impacts that may occur and Appendix O for possible measures to reduce these impacts. The agencies do not have regulatory authority over siting of wind farms.

Response 549: Your worst case scenario is not likely from the proposed line and planned projects. Extensive development of dispersed wind generation projects may pose a greater threat to viewsheds and birds using the area. See response to comments 182 and 522. Although wind farms associated with the proposed MATL transmission line could be located west of Interstate 15, the agencies are unaware of any that would be located west of Highway 89. Where developments are located depends on project economics, availability of transmission capacity, landowner agreements, and the wind resource.



From: brian harcourt [farbs@earthlink.net]
Posted At: Friday, April 06, 2007 4:12 PM
Conversation: MATL Power Line Placement
Posted To: MATL
Subject: MATL Power Line Placement

My friend Jimmer was in a wheel chair from the age of 12. He never had an opportunity to do many recreational things due to this handicap.
Robert Carney gave Jimmer and his friends the exclusive rights to hunt on his property on the Teton River. This went on for twenty five years until Jimmer passed away.

Comment 550

After his passing, the hunting rights went to the handicapped, and the 12 to 13 year-olds. This gave these people a chance to hunt without strenuous activity, or having to travel considerable distances.

Comment 551

Please put the proposed power line next to the existing N.W.E. line so people can still hunt on Carney property. If the line can't be moved, the recreation on the Carney land will probably end. Because of the land being divided by a power line, this could create a health risk.

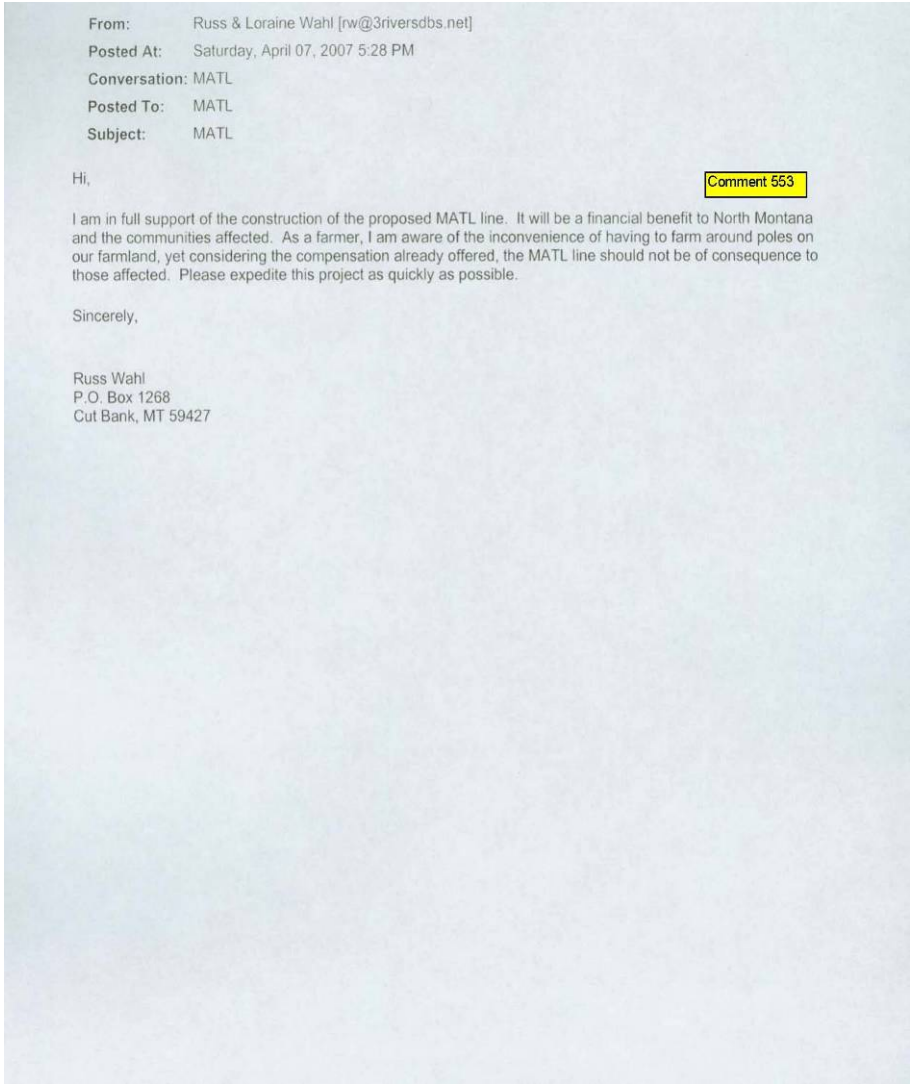
Comment 552

--- brian harcourt
--- farbs@earthlink.net
--- EarthLink: The #1 provider of the Real Internet.

Response 550: Comment noted.

Response 551: Comment noted.

Response 552: Hunting can continue near and around a power line. Health concerns are discussed in Section 3.4.2.



From: Russ & Loraine Wahl [rw@3riversdbs.net]
Posted At: Saturday, April 07, 2007 5:28 PM
Conversation: MATL
Posted To: MATL
Subject: MATL

Hi,

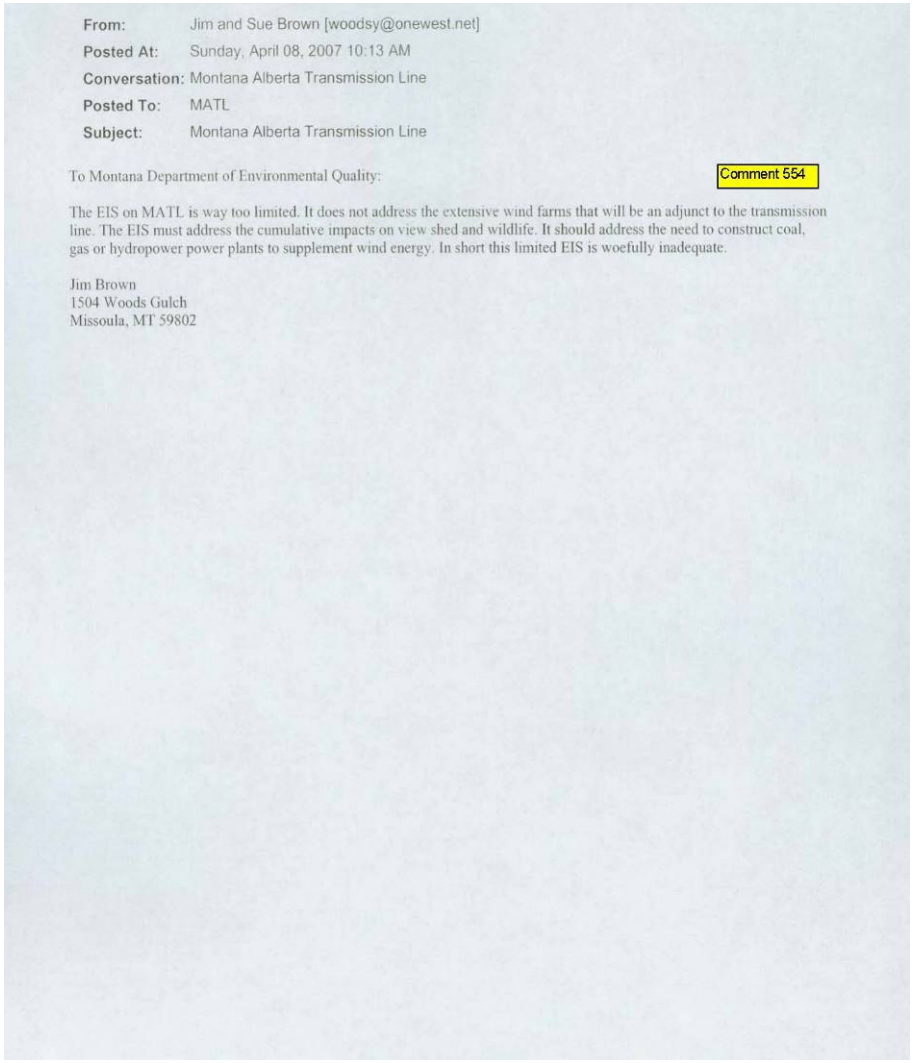
Comment 553

I am in full support of the construction of the proposed MATL line. It will be a financial benefit to North Montana and the communities affected. As a farmer, I am aware of the inconvenience of having to farm around poles on our farmland, yet considering the compensation already offered, the MATL line should not be of consequence to those affected. Please expedite this project as quickly as possible.

Sincerely,

Russ Wahl
P.O. Box 1268
Cut Bank, MT 59427

Response 553: Comment noted. See additional discussion of costs associated with farming around structures in Section 3.13.



From: Jim and Sue Brown [woodsy@onewest.net]
Posted At: Sunday, April 08, 2007 10:13 AM
Conversation: Montana Alberta Transmission Line
Posted To: MATL
Subject: Montana Alberta Transmission Line

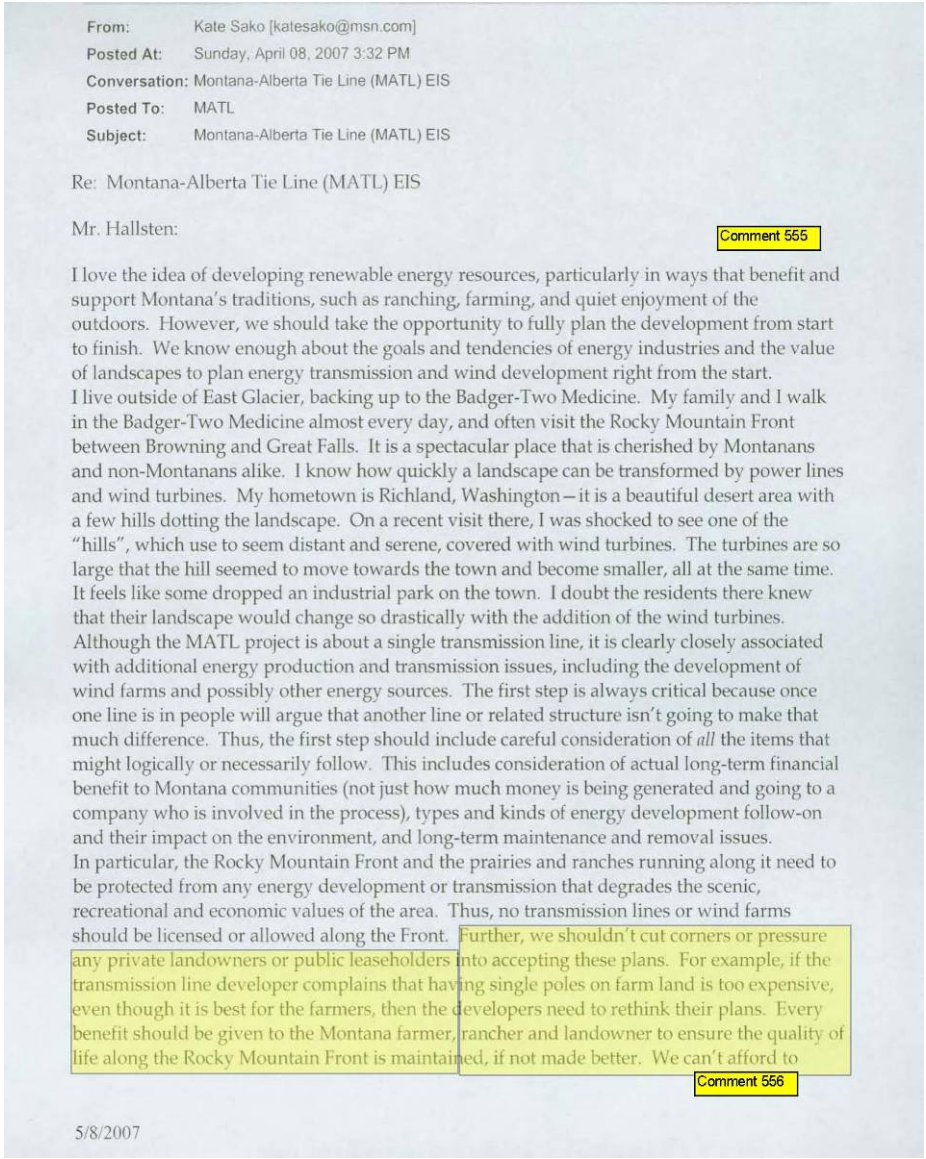
To Montana Department of Environmental Quality:

Comment 554

The EIS on MATL is way too limited. It does not address the extensive wind farms that will be an adjunct to the transmission line. The EIS must address the cumulative impacts on view shed and wildlife. It should address the need to construct coal, gas or hydropower power plants to supplement wind energy. In short this limited EIS is woefully inadequate.

Jim Brown
1504 Woods Gulch
Missoula, MT 59802

Response 554: See the revised discussion of cumulative impacts in Chapter 4.



From: Kate Sako [katesako@msn.com]
Posted At: Sunday, April 08, 2007 3:32 PM
Conversation: Montana-Alberta Tie Line (MATL) EIS
Posted To: MATL
Subject: Montana-Alberta Tie Line (MATL) EIS

Re: Montana-Alberta Tie Line (MATL) EIS

Mr. Hallsten:

Comment 555

I love the idea of developing renewable energy resources, particularly in ways that benefit and support Montana's traditions, such as ranching, farming, and quiet enjoyment of the outdoors. However, we should take the opportunity to fully plan the development from start to finish. We know enough about the goals and tendencies of energy industries and the value of landscapes to plan energy transmission and wind development right from the start.

I live outside of East Glacier, backing up to the Badger-Two Medicine. My family and I walk in the Badger-Two Medicine almost every day, and often visit the Rocky Mountain Front between Browning and Great Falls. It is a spectacular place that is cherished by Montanans and non-Montanans alike. I know how quickly a landscape can be transformed by power lines and wind turbines. My hometown is Richland, Washington—it is a beautiful desert area with a few hills dotting the landscape. On a recent visit there, I was shocked to see one of the "hills", which use to seem distant and serene, covered with wind turbines. The turbines are so large that the hill seemed to move towards the town and become smaller, all at the same time. It feels like some dropped an industrial park on the town. I doubt the residents there knew that their landscape would change so drastically with the addition of the wind turbines.

Although the MATL project is about a single transmission line, it is clearly closely associated with additional energy production and transmission issues, including the development of wind farms and possibly other energy sources. The first step is always critical because once one line is in people will argue that another line or related structure isn't going to make that much difference. Thus, the first step should include careful consideration of *all* the items that might logically or necessarily follow. This includes consideration of actual long-term financial benefit to Montana communities (not just how much money is being generated and going to a company who is involved in the process), types and kinds of energy development follow-on and their impact on the environment, and long-term maintenance and removal issues.

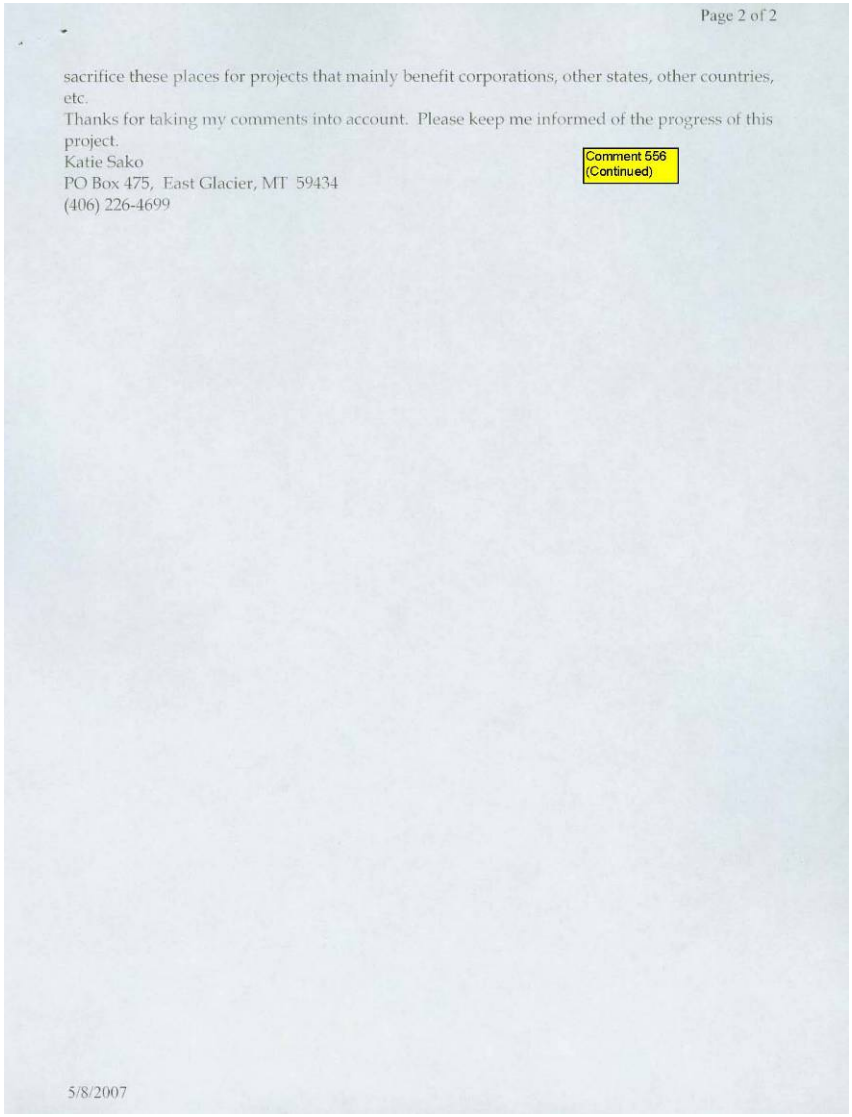
In particular, the Rocky Mountain Front and the prairies and ranches running along it need to be protected from any energy development or transmission that degrades the scenic, recreational and economic values of the area. Thus, no transmission lines or wind farms should be licensed or allowed along the Front. Further, we shouldn't cut corners or pressure any private landowners or public leaseholders into accepting these plans. For example, if the transmission line developer complains that having single poles on farm land is too expensive, even though it is best for the farmers, then the developers need to rethink their plans. Every benefit should be given to the Montana farmer, rancher and landowner to ensure the quality of life along the Rocky Mountain Front is maintained, if not made better. We can't afford to

Comment 556

5/8/2007

Response 555: Comment noted. The discussion of cumulative impacts for the proposed MATL transmission line has been expanded in Chapter 4. The agencies administer no permits specifically for wind farms as energy facilities. It is possible that few if any state permits would be necessary for projects proposed on private lands with no stream or wetland crossings or encroachments. Persons interested in protecting the viewshed of the Rocky Mountain Front would need to work with individual developers as wind farms are sited and planned.

Response 556: Comment noted.

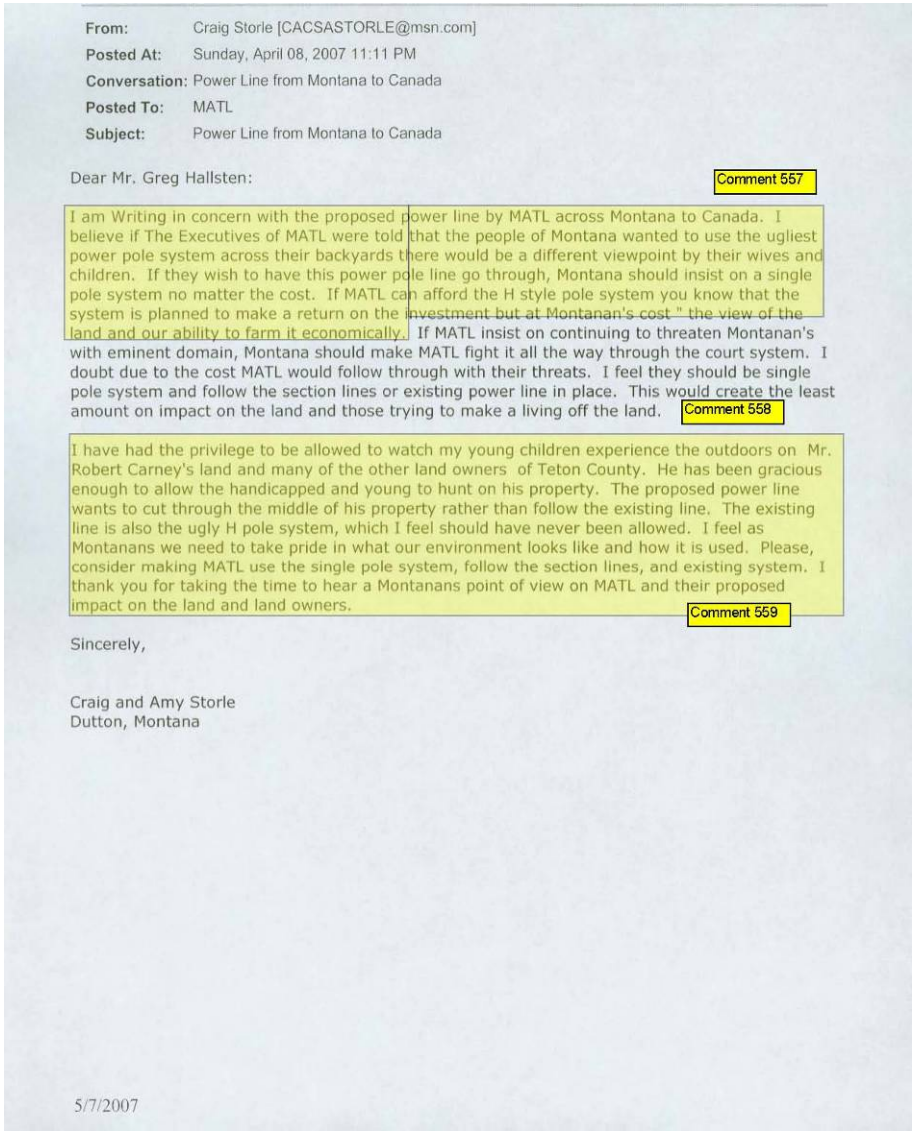


sacrifice these places for projects that mainly benefit corporations, other states, other countries, etc.
Thanks for taking my comments into account. Please keep me informed of the progress of this project.

Comment 556 (Continued)

Katie Sako
PO Box 475, East Glacier, MT 59434
(406) 226-4699

5/8/2007



From: Craig Storle [CACSASTORLE@msn.com]
Posted At: Sunday, April 08, 2007 11:11 PM
Conversation: Power Line from Montana to Canada
Posted To: MATL
Subject: Power Line from Montana to Canada

Dear Mr. Greg Hallsten:

Comment 557

I am Writing in concern with the proposed power line by MATL across Montana to Canada. I believe if The Executives of MATL were told that the people of Montana wanted to use the ugliest power pole system across their backyards there would be a different viewpoint by their wives and children. If they wish to have this power pole line go through, Montana should insist on a single pole system no matter the cost. If MATL can afford the H style pole system you know that the system is planned to make a return on the investment but at Montanan's cost " the view of the land and our ability to farm it economically. If MATL insist on continuing to threaten Montanan's with eminent domain, Montana should make MATL fight it all the way through the court system. I doubt due to the cost MATL would follow through with their threats. I feel they should be single pole system and follow the section lines or existing power line in place. This would create the least amount on impact on the land and those trying to make a living off the land.

Comment 558

I have had the privilege to be allowed to watch my young children experience the outdoors on Mr. Robert Carney's land and many of the other land owners of Teton County. He has been gracious enough to allow the handicapped and young to hunt on his property. The proposed power line wants to cut through the middle of his property rather than follow the existing line. The existing line is also the ugly H pole system, which I feel should have never been allowed. I feel as Montanans we need to take pride in what our environment looks like and how it is used. Please, consider making MATL use the single pole system, follow the section lines, and existing system. I thank you for taking the time to hear a Montanans point of view on MATL and their proposed impact on the land and land owners.

Comment 559

Sincerely,

Craig and Amy Storle
Dutton, Montana

5/7/2007

Response 557: Comment noted.

Response 558: Comment noted.

Response 559: Use of monopoles and following section lines are measures adopted to address land use impacts where appropriate. Many existing lines in Montana use H-frame wood poles. This structure type would be used on the MATL line in range land and in selected locations on crop land. The presence of the new line on Carney property would not preclude use of the land for hunting.

The following comments are summarized from hearings conducted on the draft EIS.

Comment 560: Commenter strongly opposes cutting across a field on a diagonal on the Belgian Hill Alternative. The field is currently in CRP but the contract will run out in a few years. Commenter wants the line to go along the field line or property line with no diagonals through the field.

Response 560: Comment noted.

Comment 561: Monopoles are the same price as dual pole H-frame structures. Directly embedded steel monopoles are the same price as H-frames.

Response 561: See responses to comments 38 and 357.

Comment 562: Opposes cutting diagonally across field on Belgian Hill Alternative and commenter wants to see the line built along the field line or property line.

Response 562: Comment noted. The trade offs between alignments in the Belgian Hill Road area are summarized in Section 2.6 and 3.16.

Comment 563: A bill was introduced in Montana's recent legislative session to give property owners crossed by a new transmission line a property tax break as a way for the state to help these landowners who are making sacrifices for the public good.

Response 563: House Bill 843 would have exempted property taxes on lands that are within 660 feet on either side of the midpoint of a transmission line right-of-way or easement which had a design capacity of 30 megavoltamperes or greater and was constructed after January 1, 2007. The type of land that was to be exempted was agricultural lands. House Bill 843 did not pass the 2007 Legislature. This exemption of property taxes was incorporated into House Bill 3 in the Special Session of 2007 and was signed into law.

Comment 564: Commenter supports Alternative 4 as it does a good job of addressing landowner concerns. It would take only 4-5 months to pay off the extra costs of Alternative 4.

Response 564: Comment noted.

Comment 565: The draft EIS does not compare what the added cost would be for affected farmers to farm around this line for the next 100 years relative to MATL's costs to build each alternative.

Response 565: The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Comment 566: DEQ did a good job developing Alternative 4 but caved into MATL by selecting modified Alternative 2.

Response 566: Comment noted.

Comment 567: The Belgian Hill Road alignment is through farmland, not grassland on the north side of the alignment.

Response 567: On the north side of the alignment, north of the irrigation canal, the alignment traverses about 2,320 feet of grassland and then about 320 feet of cultivated land which likely can be spanned. South of the canal the revised alignment runs north-south traversing about 1,030 feet of land irrigated with a side roll irrigation system oriented east-west. This system would probably have to be broken apart and reassembled on the far side of one structure each time it is used in the future. From here, the revised line would run north-south along irrigated fields for about 7,900 feet. South of this point the line would be diagonal for about 3,030 feet across farm land before rejoining the proposed alignment.

The Belgian Hill Road alignment is actually through farmland and was identified incorrectly in the draft EIS as grassland. The agencies are soliciting comment on these alignments and another possible alignment in the Belgian Hill Road area. See Sections 2.6 and 3.16 for additional information.

Comment 568: Commenter already has 22 H-frames on his land which are located on a diagonal and 21 more are proposed. Nowhere in the Major Facility Siting Act does it mention that MATL's ability to borrow funds is a decision criterion.

Response 568: The Major Facility Siting Act requires a finding "that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives."

Comment 569: Commenter supports Alt 4.

Response 569: Comment noted.

Comment 570: The draft EIS failed to address the cost to farmers who have to farm around the structures for the life of the line.

Response 570: DEQ has worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Comment 571: Having to farm around structures on Alternative 2 would cost more than the additional cost of building Alternative 4. The commenter estimates it would cost farmers an additional $6,522,000 to farm around the structures over the life of the line.

Response 571: Comment noted. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Comment 572: Page 3-157 of the draft EIS draws a conclusion on the cost to farm around structures but it's hard to quantify the cost to local farmers from a Canadian study done in 1970 and then converting costs to today's US dollar values.

Response 572: Comment noted. Additional discussion of alternatives in the Diamond Valley area is found in Sections 2.6 and 3.16. See Section 3.13 for additional information about the cost to farmers.

Comment 573: Commenter feels insulted by DEQ's view that annual payments proposed by MATL for farming around structures is mitigation for impacts.

Response 573: Mitigation is typically viewed as a measure that will reduce or eliminate an impact. While the measure proposed by MATL would not eliminate an impact, it might reduce the impact through compensation.

Comment 574: The draft EIS cites MATL's economic ability and demands but does not mention their $28 million per year revenue stream to pay additional costs of Alternative 4. Reconsider Alternative 4 after doing a fair economic analysis.

Response 574: Comment noted. See Section 3.13 for additional information on farming costs. The agencies have worked with area landowners and identified three additional alignments in the Diamond Valley area. These are described in Sections 2.6 and 3.16.

Comment 575: Commenter believes the draft EIS is an economic statement and not an environmental impact statement.

Response 575: Your opinion is noted.

Comment 576: Are annual payments to landowners a condition of the Major Facility Siting Act certificate? If so, what is the amount per pole?

Response 576: Annual payments are part of the applicant's proposal. As proposed by MATL annual payments would vary with placement within a field and the degree to which farming practices are interfered with. Annual payments of this nature are a new concept in Montana. See Section 3.13 for further discussion of costs to farming around poles.

Comment 577: Commenter is opposed to the line if it doesn't run north/south and east/west. He farms around 44 existing structures. Alternative 2 would move the proposed line off his place. DEQ's proposed reroute in the Diamond Valley area would put the line close to 17 existing poles. Commenter prefers Alternative 2 rather than DEQ's tentative preferred alignment.

Response 577: Comments noted. See Sections 2.6 and 3.16 for discussion of local routing options in the Diamond Valley area that could be required by the agencies to reduce impacts.

Comment 578: Commenter would prefer monopoles on his land rather than H-frames.

Response 578: Comment noted.

Comment 579: A member of the local Port Authority commented in support of the transmission line because it could add several million and possibly a billion dollars to the area economy; the line would allow for wind energy generation, and would increase tax revenue.

Response 579: Comments noted. See revised Section 3.13 for updated tax revenues as a result of the passage of House Bill 3, Tax Incentives for Energy Development which recently passed the Montana Special Legislative Session.

Comment 580: Commenter supports Alternative 4 because it balances impacts and costs; DEQ did a good job developing this alternative but made a mistake when it tentatively selected Alternative 2 with mitigation.

Response 580: Comments noted.

Comment 581: On page 2-10 of the draft EIS there is an error when it says there was no plan to use extra fiber optic line for other commercial purposes. Six months ago a Tonbridge press release said the company was exploring the commercial value of the fiber optic overhead ground wire. If the company used the potential revenue from the fiber optic lines, wouldn't this aid in the recovery of extra costs for Alternative 4?

Response 581: See response to comment 346.

Comment 582: There is an error on page 2-40 where the draft EIS indicated that there is a potential upgrade to 400 MW in each direction, 800 MW total. In a MATL press release it was stated that the line might be upgraded to 450 MW.

Response 582: See response to comments 346 and 626 for discussion of line capacity.

Comment 583: Any upgrade is a potential revenue increase to MATL and should be factored into DEQ's decision.

Response 583: Comments noted. At this time no upgrades are proposed.

Comment 584: On pages 2-45 though 2-47 four alternatives were dismissed solely on the basis of higher costs including guyed versus self-supporting angle structures, underground construction, use of monopoles, and a tie into Western Area Power Administration's line at Shelby. Why is it appropriate for the agency to dismiss alternatives based upon concern for MATL's costs. DEQ is protecting MATL, not Montana's farmers. DEQ admits that there would be a higher cost to farmers in the long run but the tentative proposed route does not require the company to use monopoles placed on field lines. MATL will be able to recoup these higher costs in the long-term. It is not appropriate for DEQ to

rely on the company to some how mitigate these increased costs with some yet to be calculated and agreed upon payment. The company is not required to make such a payment. These payments need to be specified in the certificate. DEQ needs to do a proper balancing as required by ARM 17.26.1607.

Response 584: It is appropriate to dismiss alternatives because the Major Facility Siting Act requires a finding "that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives." The agencies will balance factors listed in their administrative rules and regulations as required by statute before making a decision. The agencies worked to quantify the costs of the line to farmers and compare those costs with the costs to MATL of pursuing the more expensive alternative (See Section 3.13).

Comment 585: Table 13-1-11 describes the positive tax benefits to counties but these revenues could be cut by 75 percent if Governor Schweitzer's clean and green energy bill is passed by the legislature.

Response 585: See revised Section 3.13 for estimates on property tax savings to MATL from recent changes in the law.

Comment 586: On page 4-18 the draft EIS discusses easement payments. This discussion is not required by the Major Facility Siting Act.

Response 586: The Montana Environmental Policy Act requires that an EIS disclose the economic impacts of regulations on an applicant. Easement payments made on MATL's proposed route would be an adverse economic impact of regulation if another alternative is selected.

Comment 587: If MATL already paid for ROW access and that alternative is not permitted, MATL may lose the money they already spent. To seek easements and pay for routes that have not been permitted by DEQ is a business decision MATL made which it was free to make and the agency should not base decisions about the project on any such payments.

Response 587: Comments noted.

Comment 588: A commenter provided additional information on the number of jobs that may be generated at a wind farm. A wind farm may generate 10 jobs but more likely only one or two jobs.

Response 588: Your opinion is noted. See Section 4.14 for further discussion of the economic impacts from wind farms.

Comment 589: The mayor of Cut Bank fully supports findings in the draft EIS and the proposed route.

Response 589: Comments noted.

Comment 590: A member of the MATL American Advisory Committee noted that MATL tried to accommodate everyone. The project is important to Glacier, Toole, Pondera, and Teton counties as well as the Great Falls area. While Great Falls is looking at an expensive coal fired generation project, wind power could be harnessed for energy but a transmission line is needed for this type of generation. He supports the project.

Response 590: Comments noted.

Comment 591: A tribal member supports Alternative 3 because it is a little closer to the Blackfeet Indian Reservation and thus would give a potential advantage to wind projects on the Blackfeet Indian Reservation.

Response 591: Comments noted.

Comment 592: A Toole County Commissioner and member of the Port Authority in Shelby supported the MATL project because it is necessary for wind farms, several million dollars could be invested in Toole and Glacier counties, and this investment could help the tax base and possibly lower taxes for other property owners.

Further, he supports alternative that causes the least impacts to farmers urges DEQ to make a decision quickly so the project can move forward.

Response 592: Comments noted.

Comment 593: The Mayor of Shelby and Director of the Port Northern Montana commented that DEQ did a good job looking so thoroughly at the alternatives. MATL has done a good job trying to accommodate property owners and farmers. He supports the idea of making annual payments for those having structures on their property. Interstate 15 impacted a lot of farm land but it was for the common good and farmers do not get annual payments for Interstate 15. At least MATL is trying to mitigate the impacts from the line. He hopes that this project will lead to a larger tax base perhaps resulting in lower taxes.

Response 593: Comments noted. See the revised discussion of tax revenues in Section 3.13. House Bill 3, Tax Incentives for Energy Development that was passed in the recent Special Session of the Montana Legislature modified tax law that would affect tax revenue from the MATL line.

Comment 594: A Glacier County Commissioner commented that MATL has done the best job they can in trying to do the best to mitigate negative impacts to farmers. Sacrifice must be made and MATL has done an excellent job in trying to minimize impacts. He sees MATL as a watershed event that will bring other projects like wind farms and related businesses into the community. He supports the MATL project.

Response 594: Comments noted.

Comment 595: Don Banyack supported the project but has concerns including: Concerns about H-frame structures and wonders why monopoles were not required. Monopoles might cost more but "What the heck is cost nowadays?" Farmers will be stuck working around the poles for life.

Response 595: Comments noted.

Comment 596: Tim Hoof submitted alternatives to DEQ and appreciates that his alternatives were considered and one incorporated into the tentative preferred action. He supports the economic development and benefits the line would bring.

Response 596: Comments noted.

Comment 597: What happens if a land owner doesn't sign an easement contract for the right-of-way? Would eminent domain be used?

Response 597: Use of eminent domain is a last resort. However under Montana law (Section 70-30-102, MCA) eminent domain can be used for "electrical energy lines." These proceedings are handled through state court. More information on eminent domain can be found in the publication "Eminent Domain in Montana" available through the Environmental Quality Council and available on the internet at http://www.leg.mt.gov/content/publications/lepo/edhandbook.pdf. Also see the response to comment 8.

Comment 598: When will the routing decision be made?

Response 598: DEQ has 30 days in which to issue its decision after the final EIS is published.

Comment 599: How would the line affect GPS and computerized farming equipment? Who is responsible for these effects?

Response 599: See revisions to Section 3.4.3. The agencies could condition approval of the line in a manner that would require MATL to investigate complaints and correct GPS interference caused by the line. GPS receivers communicate using microwave and radio frequencies. Many factors affect GPS use, including receiver/antenna design, type of GPS equipment, satellite geometry, when a GPS satellite exhibits operational anomalies and proximity of shielding objects. Out-of-band emissions by radio, TV, communications, and radar transmitters can cause an electromagnetic interference problem. Other potential electromagnetic interference sources include gasoline engine ignition systems, TV and computer monitors, electric motors, fluorescent lights, ac-dc converters, alternators, and generators and switching power supplies. At the surface of the earth the satellite microwave signals are weak and any reduction of signal intensity due to scattering by transmission line conductors or noise due to corona and/or gap discharges could degrade receiver performance or cause loss of signal lock.

A gap discharge occurs between parts of hardware on a power line that are physically close but at different voltages. If the voltage becomes high enough, a spark occurs across the gap. Gap discharges tend to happen in dry weather and are more common in smaller distribution lines. Corona noise is caused when large electric fields at the conductor surface induce impulsive currents on the transmission line. These induced currents, in turn, cause wide band electric and magnetic "noise" fields that fill the entire frequency spectrum from below 100 kHz to approximately 1000 MHz, although they are usually too small to be measured above 10 – 20 MHz.

Presently, studies have found that transmission lines do not adversely affect most GPS usage and especially when GPS with high quality receivers and antennas was used, but the possibility exists. Studies have concluded that when receivers were used in close proximity to transmission lines that one satellite signal was diluted or lost. The loss of one satellite signal would not be completely detrimental since most GPS receivers rely upon a dispersed constellation of satellites to determine position, at least four or more satellites. Loss of lock on just one satellite could potentially affect accuracy due to an increase in dilution of position error caused by poor constellation accuracy. The transmission line could possibly cause a loss of signal lock. MATL would only be responsible for minimizing potential gap discharges and corona noise that has been identified as impacting GPS.

Comment 600: Do wind power sites tie directly into the line?

Response 600: As currently planned, wind energy sites would tie into the proposed Marias substation near the McCormick Ranch wind farm southeast of Cut Bank.

Comment 601: How far along is MATL in Alberta?

Response 601: A hearing began on October 30, 2007 and the Alberta Energy and Utilities Board must issue a decision within 90 days of the completion of the hearing.

Comment 602: How long will it take to construct the line?

Response 602: See Chapter 2 in draft EIS.

Comment 603: What is the capacity of the transmission line? Would the structure design (H-frames versus monopoles) restrict future capacity upgrades of the line?

Response 603: Proposed capacity is 300 MW in each direction. No, structure design would not restrict future capacity upgrades. However, if future upgrades are planned then the line should initially be designed so that ground clearances would meet National Electric Safety Code regulations. This may affect pole height. Within reason either single or double poles can be used to accommodate any required additional ground clearances.

Comment 604: Is the transmission line a connection into Alberta for protection and safety or for wind farm development?

Response 604: MATL's line would help wind generators transmit their power to Canada or south to the US market. It would provide another transmission path that could be used if other lines were out of service.

Comment 605: Why don't all of the turbines in wind farms run all of the time? They seem unreliable.

Response 605: Wind turbines do not run all the time because they operate within an optimal range of wind speed. If the wind is not strong enough, the turbine would not turn and power would not be produced. If the wind is too strong, turbines are shut down or depowered to protect them from damage. Like all types of generators, wind turbines are sometimes deactivated so that maintenance can be performed on them. Lastly, generation may not occur if there is not a market for the power produced.

Comment 606: Is wind power cheaper than power from other sources?

Response 606: Currently, wind generated electricity is fast becoming cost competitive with electricity produced by natural gas-fired generation. This is especially the case with higher natural gas prices. However, wind farm developers still claim to need a tax credit to operate profitably in most locations, so they may not yet be competitive with more conventional existing forms of electricity generation such as coal and hydro power.

Comment 607: Who pays for the line? Will the cost of the line be passed on to taxpayers?

Response 607: MATL is financing the line by itself through investors. The cost will not be passed on to taxpayers.

Comment 608: What is the MATL line going to do to the cost of power since approval of the line would open the market to Alberta?

Response 608: MATL should have little effect on the cost of power in Montana. This is discussed in the draft EIS in Section 3.13.

Comment 609: Information in Appendix F appears to be at odds with other laws and restrictions. Does the Major Facility Siting Act trump federal laws or other state laws?

Response 609: Montana's Major Facility Siting Act does not "trump" other federal laws. After a Major Facility Siting Act certificate is issued, certain other state and local laws are preempted. Section 75-20-401, MCA, states:

"Additional requirements by other governmental agencies not permitted after issuance of certificate -- exceptions -- venue for challenging certificate issuance.

(1) Notwithstanding any other law, a state or regional agency or municipality or other local government may not require any approval, consent, permit, certificate, or other condition for

the construction, operation, or maintenance of a facility authorized by a certificate issued pursuant to this chapter, except that the department and board retain the authority that they have or may be granted to determine compliance of the proposed facility with state and federal standards and implementation plans for air and water quality and to enforce those standards.

(2) This chapter does not prevent the application of state laws for the protection of employees engaged in the construction, operation, or maintenance of a facility…"

In addition, the Major Facility Siting Act does not preempt state agencies which have an ownership interest in land. For example, when state school trust land is crossed an easement or land use license is still required from DNRC and the Board of Land Commissioners for that property right.

Comment 610: Is trespassing allowed outside of easements?

Response 610: No.

Comment 611: Cascade County commissioner Peggy Beltrone testified that the project is needed as a whole, and believes the process balances interests of agriculture and businesses along the route with the communities along the line with regard to renewable energy. She believes a good process was used in developing the project.

Response 611: Comment noted.

Comment 612: Commissioner Beltrone stated Montana has strong wind resource and the wind occurs in an area that has a very poor economic record.

Response 612: Comment noted

Comment 613: Commissioner Beltrone presented information indicating that the US Department of Energy has a National goal of 20 percent wind energy and north central Montana has the potential for 5-10 GW of wind generation. Such a theoretical 5-10GW development would physically disturb an area 26 miles in diameter within an area 186 miles in diameter. Transmission would be needed to transmit this power out of Montana.

Response 613: Comment noted. The current proposal is for a transmission line with a capacity to move 300 MW in each direction as shown in Table 4.1-2 and would not be able to handle 5-10 GW. See Chapter 4 for the revised discussion of cumulative impacts from wind farm generation.

Comment 614: Montana is in the western transmission grid which includes Alberta and British Columbia. Alberta is a natural trading partner but transmission is limited between Montana and Alberta. Montana has 600 MW wind generation that has subscribed to the MATL line if it is built.

Response 614: Comment noted. Montana is in both the western and eastern transmission grids. The dividing line in Montana runs from about Fort Peck dam through Miles City. Transmission and generation east of this line operates as part of the eastern grid and west of this line electricity is exchanged in the western grid. In Montana a small amount of exchange between the grids occurs at Miles City.

Comment 615: Habel's worked with MATL to locate the line through the Teton River area and this would have prevented further paralleling of NorthWestern Energy's line thus would have reduced farming impacts. DEQ's tentative preferred alternative surprised him and adds a total of 9 additional structures they would have to farm around for the rest of his life. Why does the DEQ alignment have to diagonal across his property?

Response 615: Alternative 3 diagonals through more farm lands and was located in close proximity to the NorthWestern line. In scoping meetings other farmers indicated that another line close to the NorthWestern line would cause more impacts to farming than a single line would. The alternative 2 crossing of the Teton River would be located on state owned land while alternative 3 that parallels the NorthWestern line would be located on private land. The Major Facility Siting Act requires DEQ to select alignments on public lands when such alignments are as economically as practicable as using private lands.

Comment 616: The commenter supports trade with Canada and developing renewable wind resources.

Response 616: Comment noted.

Comment 617: MATL is not a utility and therefore how can they gain the right of eminent domain? The MATL line would not be used to satisfy Montana consumers.

Response 617: See response to comment 8.

Comment 618: Commercial companies building lines should have to pay a yearly rent. Will private landowners have any recourse or revenue if the transmission line crosses their land?

Response 618: Comment noted. See response to comment 8.

Comment 619: When the missile silos were constructed the government did it the right way; poles are located 30 feet from the property line. If a transmission line is built along the edge of a field, it is easier to farm around the poles.

Response 619: Comment noted.

Comment 620: Commenter feels disenfranchised from the process because he leases a parcel of state school trust land and a couple of alternatives cut diagonally across this land. Farming practices are changing as farm equipment continues to become larger. Fields are larger as strips are combined, chemical sprayers are 100 feet wide or wider, and therefore having to farm around structures is going to cost more. The commenter will try to negotiate with DNRC to lower the lease rate to use state school trust land because of the lost production and extra expenses to farm around power poles.

Response 620: Comment noted. The agencies have worked with consultants to better quantify the costs of the line to farmers. See Section 3.13 for additional information.

Comment 621: Anything worth doing is worth doing well. The commenter supports Alternative 4 even though it costs a bit more. However Alternative 4 is more environmentally friendly.

Response 621: Comment noted.

Comment 622: Commenter voiced support for wind farms but doesn't want to see transmission lines and wind farms in every landscape, especially the Rocky Mountain Front.

Response 622: Comment noted.

Comment 623: Concerned how energy development is occurring around the state in an unplanned, piecemeal fashion. The public and decision makers should have a better sense about what the expanded energy grid is going to look line when it is fully built up.

Response 623: Montana law does not require a comprehensive plan for the grid. Projects, both generators and transmission lines, are built in response to growing demands. These patterns of growth vary geographically and over time. Transmission planners within and between these geographic areas propose new projects in response to these changing demands as needed. Thus it is difficult to say what the transmission grid will look like in the future. In Montana,

major new transmission lines are planned south of Townsend and/or Garrison, west of Broadview, and MATL has discussed possibilities for new transmission lines between Great Falls and Townsend and from Alberta to Havre and Great Falls.

Comment 624: The EIS needs to make it clear where the wind farms will be located.

Response 624: See response to comment 22 and the revised discussion of cumulative impacts effects in Chapter 4.

Comment 625: EIS does not address what the impacts would be from other proposed transmission lines connecting to the MATL line nor the cumulative impacts to wildlife from the MATL line and other proposed transmission lines connecting to it.

Response 625: See Chapter 4 for a revised discussion of cumulative impacts.

Comment 626: Concern was expressed about future upgrades of the transmission line.

Response 626: Comment noted. The conductors that MATL proposes to use would be able to handle 600 MW but the line losses would be so high that this would be impractical. The project will run more efficiently, with low line losses, at 300 MW (see response to comment 346 as well). Future upgrades are not proposed at this time, but remain a possibility. See response to comment 10 about ground clearance.

Comment 627: Commenter supports the MATL project because it will benefit all of Montana.

Response 627: Comment noted.

Comment 628: Commenter stated that MATL has accommodated his concerns.

Response 628: Comment noted.

Comment 629: Why can't the line border the southwest side of the wildlife refuge? This kind of adjustment would take the line out of crop land for about 7-8 miles.

Response 629: The mission of the national wildlife refuge system is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans". Under the National Wildlife Refuge System Improvement Act of 1997, the Secretary of the Interior is required to ensure that the mission of the system and the purposes of each refuge are carried out, except that if a conflict exists between the purposes of a refuge and the mission of the System, the conflict shall be resolved in a manner that first protects the purposes of the refuge, and, to the extent practicable, that also achieves the mission of the System (Public Law 105-57 Oct. 9, 1997, 111 STAT. 1255). Benton Lake National Wildlife Refuge was established by Executive Order of President Herbert Hoover in 1929, as "a refuge and breeding ground for birds". Because power lines pose a risk of killing birds that collide with the lines, guy wires, and ground wires, it is highly unlikely that the proposed transmission line would be considered to be compatible with the purposes of the refuge and the federal system of wildlife refuges. Therefore the agencies conclude that there would be a very low probability that Fish and Wildlife Service would allow the line to be built on refuge lands. Consequently, an alternative to site the proposed transmission line on refuge lands was not carried forward for detailed consideration.

Comment 630: MATL said they would do 25 miles of monopoles. This would cut the cost of the annual fee given to landowners, and would help reduce costs to MATL.

Response 630: Comment noted. MATL has revised its proposal so that single pole structures would be used where the line would cross 53 miles of cultivated land diagonally.

Comment 631: Is there going to be another EIS for each wind farm?

Response 631: An environmental review, whether an environmental assessment or an environmental impact statement, is required for most state and federal permitting actions. The state does not have permitting authority over wind farm siting, so it is unlikely an EIS would be prepared for future wind farms located on private land.

Comment 632: Commenter does not dispute the need for the line.

Response 632: Comment noted.

Comment 633: There are still farming and visual impacts when the transmission line follows the section lines even if single poles are used. For example the commenter farms land where the Western Area Power Administration's 230 kV single pole line was built at the edge of the field. In the fall they harrow these fields and when they turn they have hit the pole with the outer end of the harrow causing extensive damage to the harrow.

Response 633: Comment noted. The agencies concur. No matter which alternative is selected, impacts will result as discussed in the draft EIS.

Comment 634: An aerial applicator was killed when the wing of his airplane clipped a guy wire on Western Area Power Administration's single pole 230kV line.

Response 634: Comment noted.

Comment 635: What is the potential for this line tying into the WAPA line at Shelby? The commenter has heard that there is excess power capacity on the WAPA line. Is this true?

Response 635: MATL determined that tying into the WAPA line at Shelby would be too expensive due to electricity shippers having to pay two tariffs. A discussion about MATL tying in to Shelby as an alternative is found in Section 2.8, Alternatives Considered but Dismissed. Also refer to response to comment 40.

Comment 636: Commenter supports the line because the economic effect is going to be positive for communities along the line. In addition, when private money comes in for each dollar spent it multiplies itself seven times through the community. By contrast, each government dollar brought in is multiplied by two.

Response 636: Comment noted.

Comment 637: Commenter has a concern about farming around the structures. He likes how MATL has shifted the line to the section line making it easier to farm around the poles. He supports the project and the potential for wind farms on Trunk Butte (also known as Belgian Hill).

Response 637: Comment noted.

Comment 638: Commenter who is a member of the MATL Montana Citizen Advisory Council supports the project because it will help bring good paying jobs and will be a good source of tax revenue.

Response 638: Comment noted. See the revised discussion of tax revenues in Section 3.13 since the passage of House Bill 3, that was passed in the recent Special Session of the Montana Legislature.

Comment 639: If the line is built, will an upgrade occur? Would an upgrade require another EIS?

Response 639: It is not known if a future upgrade would occur. An upgrade is not proposed at this time. An amendment to the Major Facility Siting Act certificate would be required only if additional right-of-way would be needed. Thus a review under the Montana Environmental Policy Act would be unlikely unless the Major Facility Siting Act certificate needed revision.

Comment 640: The alternatives balance the effects between agriculture and wind development.

Response 640: Comment noted.

Comment 641: Commenter believes that wind power offers an opportunity for economic development and he would like to see more than four wind projects that are planned north of Great Falls. These will have substantial economic benefits for the region and there is a possibility of a wind turbine manufacturing facility. The proposed line will strengthen ties between Alberta and Montana and strengthen the existing electrical grid.

Response 641: Comments noted.

Comment 642: The window of opportunity for other projects is only open for so long and this project needs to come to a timely conclusion before these other projects can move ahead.

Response 642: Comment noted.

Comment 643: This would be the third line that crosses the commenter's farmland north of the Rainbow Switchyard and he has concerns about farming around the new line.

Response 643: Comment noted.

Comment 644: It's a 300 MW line not a 600 MW line as indicated in the draft EIS. It is not possible to send power both ways at the same time.

Response 644: See response to comment 346.

Comment 645: This line has limited capacity to handle the large amount of wind power that might be generated in the area.

Response 645: Comment noted.

Comment 646: There is limited capacity to move power south of Great Falls.

Response 646: Yes, that is true. There is limited capacity to move power south of Great Falls at certain times. See response to comment 623.

Comment 647: Usually transmission lines are built by the generators of power.

Response 647: Comment noted. A more recent model is for independent transmission line companies to build lines. However, traditional integrated companies still build transmission lines in their territories. Independent system operators in some parts of the country also propose and build transmission lines.

Comment 648: We are facing unplanned and piecemeal planning for expansion of the grid. Instead of this small line, a larger line should probably be built. Is connecting this line to the Montana grid at Great Falls the best idea? This line should probably not connect at Great Falls but connect somewhere further south.

Response 648: See response to comments 623 and 346. MATL's proposed line is sized to meet the needs of its customers and allows for a bit of expansion.

Comment 649: MATL is not a utility but out to make a profit.

Response 649: The agencies agree that MATL is not a utility but is a private transmission line service provider. MATL plans on making profits from the services it provides.

Comment 650: Senator Baucus has concerns that the needs of farmers and ranchers be addressed. He favors production tax credits for spurring the development of renewable energy in Montana. He gives serious consideration to the concerns raise by the citizens and looks favorably upon positive growth and development of this kind of renewable and clean energy in the state.

Response 650: Comments noted.

Comment 651: Since the study area consists of 88 percent agricultural land and 69 percent is dry land cropland or CRP land, reducing adverse impacts to this category of land should carry great weight when comparing the alternatives.

Response 651: Comment noted. See revised estimates of the type of land use affected by the alternatives in Section 3.1.

MONTANA ALBERTA TIE LTD

COMMENTS ON THE LETTER FROM
WAYNE BAUER TO
THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
DATED 16 JULY 2007

Mr. Wayne Bauer provided answers in the referenced document to questions posed by the Montana Department of Environmental Quality in a letter to him dated 15 May 2007. MALT considers those responses to be complete and accurate, but wishes to provide some additional information or perspective as noted below:

10 **Question from MDEQ:**

The conductor height listed on page 2-13 does not meet the requirements of the 2007 National Electrical Safety Code. Minimum conductor to ground clearance should be 22.41 feet and if they (MATL) take into account the height of modern farm equipment which exceeds the standard 14 foot vehicle road height, the conductor would need to be closer to 30 feet off the ground. Hand written notes that accompanied the comment are attached. See comments 19 and 306 also. One response should be prepared for these three comments.

MATL's Response:

Three different calculations of minimum conductor height have been presented: one derived by Mr. Shawn Dolan, one by MATL (via its design engineer, SNC Lavalin ATP) and one by Mr. Wayne Bauer. All are based on the NESC code for minimum conductor clearance but all arrive at slightly different conclusions.

In order to address this discrepancy MATL approached the firm of Marne and Associates from Billings Montana who are specialists in applying the NESC code. Marne reviewed the height calculations of Mr. Shawn Dolan and Mr. Wayne Bauer and compared them to the calculations of MATL's design engineer, SNC-Lavalin ATP. His conclusion is that the calculated minimum conductor clearance employed by MATL is correct except for a small rounding error.

MATL employed NESC 232D4 to determine minimum clearance because it is appropriate for the configuration of the MATL transmission line. MATL will install surge protection and other voltage control equipment to minimize over-voltage on the line which reduces air gap clearance requirements. With this additional electrical protection, the absolute minimum conductor clearance height allowed by code is somewhat lower than as calculated by both Mr. Dolan and Mr. Bauer while still maintaining safe clearances.

As a result of Marne's assessment, MATL has corrected the round-off error to 21.2 feet and has modified the line design to reflect this. This rounding requirement was introduced in the latest edition of Section 23 of the NESC which was published after MATL's initial height

calculations had been completed. The small difference has no practical effect on the design of the transmission line.

As has been identified by Mr. Bauer, the Design Clearance should prudently be greater than the calculated Absolute Minimum Code Clearance. In fact, that is the case with the MATL line for the following reasons:

- MATL incorporates a 2 ft safety factor to accommodate variables in the land profile as well as construction tolerances.

- The maximum sag is calculated at a conductor temperature of 100 degrees C. This only occurs when 600 MW of power is being transferred over the MATL line at an ambient temperature of 32 degrees C. However, MATL is only permitted to transfer 300 MW. When transferring 300 MW at an ambient temperature of 32 degrees C the sag will be a further 2 ft less than at 600 MW.

- The maximum design sag is calculated at the full design span between poles. However, it is often not possible to optimize the line design because of fixed points such angles or dead ends. The conductor will be higher than the minimum clearance in these abbreviated spans.

MATL is designing to standard vehicle heights as stipulated by NESC. Should a landowner have particular requirements for additional clearance, MATL will accommodate these known conditions. At crossings where relevant regulations or conventions apply (e.g. when crossing railways), MATL will increase the minimum clearance appropriately.

13. The executive summary lists wind power as being able to provide a firm backup power source to NorthWestern Energy. Wind is not considered firm power by transmission planning entities such as WECC. Wind is also not seen as a reliable source of capacity.

MATL's Response:

Wind generation is not a source of firm backup power and any such inference would be incorrect. This misinterpretation may have originated from the statement that: "The MATL line could also create another opportunity for Montana's largest privately owned transmission and distribution utility, NorthWestern Energy, to obtain regulating reserves for its transmission system control area." As has been demonstrated by the wind farms, the MATL line is a useful conduit for connecting generation to load. It could similarly be used to bring regulating reserves to the NorthWestern system, but by its nature such reserve would have to come from a source of generation other than wind.

19. Conductor height listed on page 2-13 does not meet the requirements of the 2007 NESC. Minimum line to ground clearance should be 22.41 feet based on a 14 foot vehicle height. Farm equipment typically exceeds this height and lines should be designed to accommodate anticipated vehicle heights. A photocopied portion of NESC Clearance calculations was attached to this comment and is enclosed.

MATL's Response:

Refer to the answer to question 10.

38. What is the cost of unguyed single pole construction at points of inflection compared to the cost of proposed guyed angle structures? Diagrams of the proposed angle structures, both single pole and H-frame structures are attached.

MATL's Response:

Refer to MATL Response dated July 17, 2007 to DEQ Supplemental Information Request of June 28, 2007, question 1.

306. In the draft EIS there is a statement that the minimum line to ground clearance of the MATL line would be 21.5 feet. This distance is too low to comply with the requirements of the governing code of the National Electric Safety Code. The line to ground clearance needs to be increased to alleviate the code violation. The NESC requires that line clearances be set to accommodate the tallest equipment that one would reasonably expect to work under them. Many pieces of farm machinery, when in operation, exceed the 14 foot vehicle heights in accordance with the NESC. I (the commenter) am including excerpts from the NESC and clearance calculation worksheets for you reference. For 230 kV line crossing farmland, line to ground clearances around 30 feet would be more practical. The referenced worksheets are attached.

MATL's Response:

Refer to the answer to question 10.

385. DEQ seeks an opinion on the costs (estimate) comparing proposed H-frame construction, single pole long-span design (with a concrete base), and single pole design (with direct embedded poles). The estimate would assume construction across flat to gently rolling farmland and access along the right-of-way from nearby farm or country roads. The estimate would be compared with those provided by MATL in application materials submitted to the department. These materials are attached. You would be expected to contact MATL and MATL's engineering contractor to understand and document how MATL derived its costs estimates including its application.

MATL's Response:

Refer to MATL Response dated July 17, 2007 to DEQ Supplemental Information Request of June 28, 2007, question 1.

385a. Are the conductors proposed by MATL appropriate to the 600 MW line envisioned in MATL's application (300 MW in each direction with the potential to eventually handle 400 MW in each direction)? If not, how would the opinion of costs change in response to comment 385?

MATL's Response:

Refer to MATL Response dated July 17, 2007 to DEQ Supplemental Information Request of June 28, 2007, question 2.

358b. When the transmission line can handle 300 MW in each direction, is it appropriate to refer to it as a 600 MW line?

MATL's Response:

No. The 300 MW rating is the end-to-end Path Rating as designated by WECC.

360. Would the opinion of cost change if the line were designed to handle a maximum of only 300 MW in each direction? Is so, how much would a line capable of handling only 300 MW cost?

MATL's Response:

The MATL line is designed and is being permitted to move 300 MW end-to-end, bidirectionally. The cost of the line reflects this designed capability.

700. One of the alternatives suggested following the hearings would place the conductors near a grain storage bin. The bin in question is located at T25N, R2E, SW1/4 OF SW1/4 Section 29 (see attached map). How close to the bin could the line be built and still meet code requirements?

MATL's Response:

MATL will adhere to NESC requirements as well as any other pertinent regulations when designing its line in proximity to grain storage bins or any other structures. Alternatively, MATL may offer to move the grain bin at its expense, to a new location, acceptable to the owner and away from the proposed route.

Lastly, DEQ requests calculation for the induced short-circuit current for a sprayer that is 130 feet wide when it is positioned parallel to and beneath the proposed line in to locations: a) near a structure, and b) at mid-span.

MATL's Response:

MATL has not checked HDR's calculation of a 0.79 mA induced current, but MATL has investigated whether or not an induced current at this level represents a health hazard. The value of 0.79mA is well below the safety limits stipulated in IEEE Standard 80-2000